

REGISTERED

KINNEAR
ROLLING DOORS
STEEL or ALUMINUM

**Rolling
Service Doors**

**MOTOR
Operation**

**Steel Rolling
Fire Doors**

**Metal Rolling
Grilles**

**Counter
Shutters**

**Steel & Wood
Roi-Top Doors**

Having originated the interlocking slat curtain better than 58 years ago, the name Kinnear has become synonymous for Rolling Doors the world over. By devoting their entire efforts exclusively to the manufacture of doors, Kinnear has also achieved an enviable reputation for manufacturing facilities, specialized experience and leadership in door design. To specify Kinnear Doors means more than the selection of a superior product; it is the assurance of extra door services. The Kinnear "Complete Door Service" policy, whereby designing skill, competent workmanship, the best of materials, individual fabri-

cation, plant assembly and trained installation crews are combined, make this a proven fact. Kinnear doors insure maximum economy of installation, trouble-free operation, and long service life with a minimum of maintenance cost.

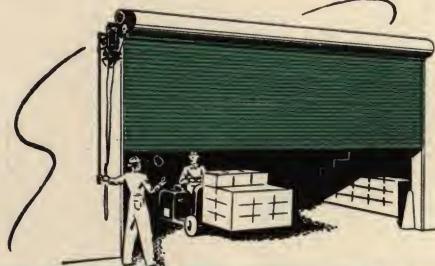
To make this specialized Kinnear Door Service most conveniently available, regardless of your location, Kinnear operates plants in Columbus, Ohio and San Francisco, Calif. and has Offices and Authorized Agents located in all principal cities. Call a Kinnear Engineer, with confidence, whenever you have a door need.

steel or aluminum rolling doors



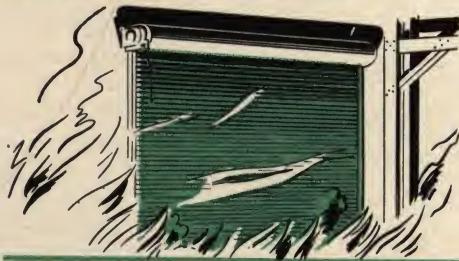
index to door types

■ rolling service doors — steel or aluminum (non-labeled)



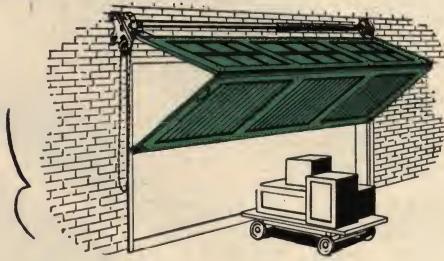
Pages 4 to 20
specifications — 20
sizes and clearances — 16 to 19
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■ "Akbar" fire doors and shutters (Underwriters' labeled)



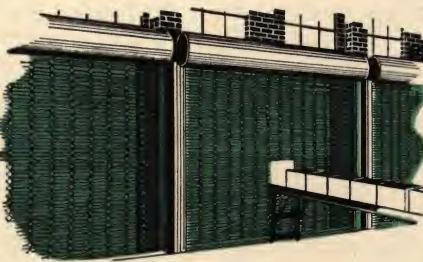
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■ bifold doors (steel or wood)



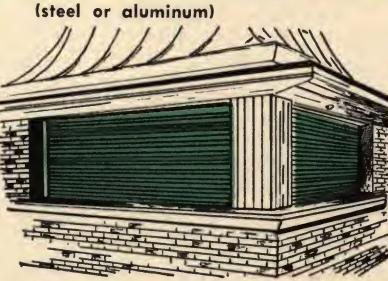
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For more detailed information and recommendations on this particular type of door consult Kinnear.

■ rolling grilles — steel or aluminum



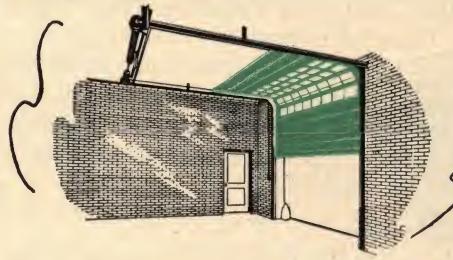
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specifications — 27
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Pages 6 to 20 for additional construction data.

■ counter shutters—other special doors (steel or aluminum)



Pages 28 and 29
Kitchen & Storage Compartment Doors
Rolling Partitions
Truck Doors
Rolling Doors with vision-lights.

■ Rol-TOP sectional overhead doors (steel or wood)



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Steel Rol-TOPS 30 & 31
Wood Rol-TOPS 32 & 33
Other Data 34 & 35

complete door service

specialized door engineering



experienced door installation



curtain features

Interlocking slats were originated by Kinnear over 60 years ago. At one time a corrugated iron sheet coiled up on a pipe was the only rolling curtain known. In the development of the rolling door this original slat design has been modified and improved, but it is noteworthy that the original features have been retained. These features are incorporated in Kinnear Slats Nos. 2 and 4, as follows:

water shedding assembly The section is made with reverse curves, thus providing a good water shed.

reversibility The position shown above sheds water against the convex surface, but if the sections are reversed, top for bottom, the assembly will then shed water against the concave side.

resistance to horizontal forces The curved sections distribute metal on both sides of the vertical or neutral axis so as to provide the same horizontal resistance to forces from either side.

resiliency Slats open up and flatten very slightly when resisting horizontal forces, which allows additional resiliency and provides a strong but flexible curtain with slats that are difficult to cripple.

free-acting joints The interlocking joints are designed to permit easy articulation in coiling.

compressibility A clearance in the interlocking bead allows a slight telescoping in the vertical length of the curtain, affording a cushion effect when the door closes. Thus the bottom bar can adjust to a slight rectilinear slope in the sill from jamb to jamb.

attractive appearance Shadows and highlights caused by the convex and concave surfaces present a pleasing appearance and contribute to the architectural design of the building.

sizes, materials, etc.

No. 2: Made in 22, 20 and 18 U.S. gauge open hearth steel. Depth of crown $\frac{1}{2}$ in., $1\frac{3}{4}$ in. on centers.

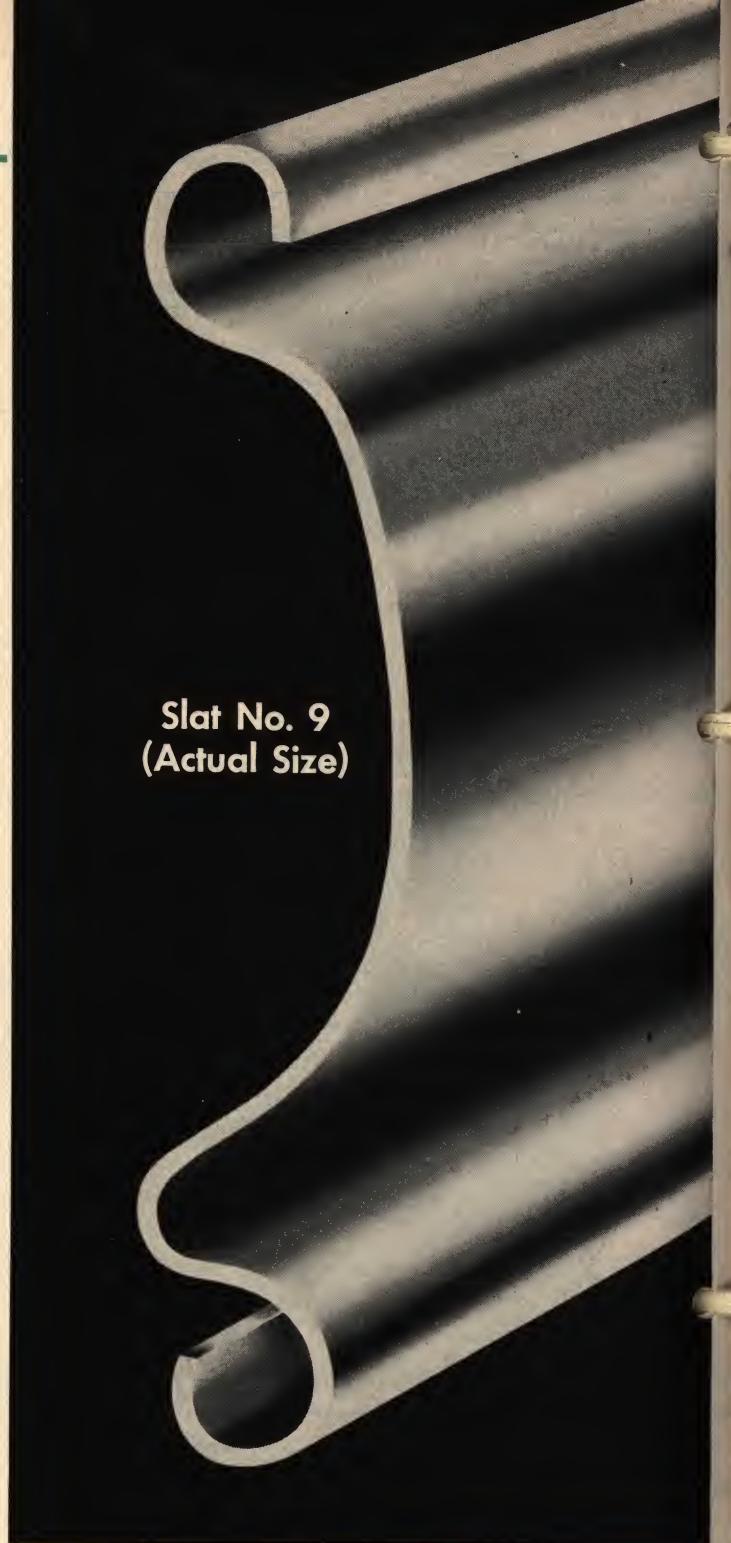
No. 4: For extremely wide doors. 20, 18 and 16 U.S. gauge. Depth of crown $\frac{3}{8}$ in., $2\frac{5}{8}$ in. on centers.

durability of dual protected steel

* All steel slats are rolled from sheet metal which has been hot dip galvanized and is free from blisters or other imperfections. A high grade zinc coating (1.25 oz. of zinc per sq ft of flat metal, per ASTM standards) is followed by Kinnear Paint Bond (phosphate coating) to insure paint adhesion. Slats when specified can be made of aluminum, bronze, Monel Metal, stainless steel or any of the metal veneered steels, as an extra.

flush surface design of No. 5 and No. 17

A curtain of No. 5 slats provides an even surface without wavy effect. Joints articulate easily in the direction of the coil but lock in the other direction, which eliminates buckling and provides a rigid curtain which can be moved up or down by forces acting through the vertical axis. Made in 22 and 20 U.S. gauge.

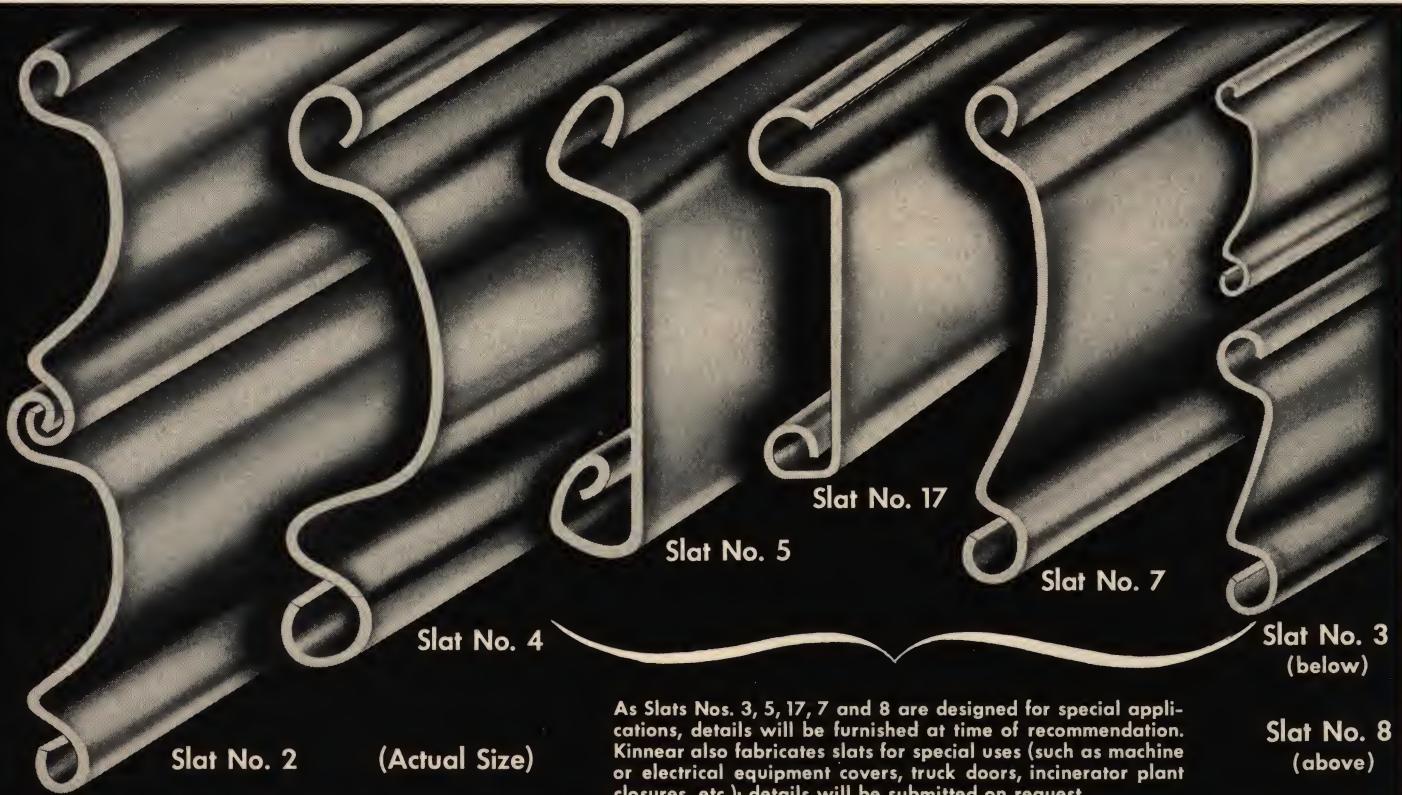


**Slat No. 9
(Actual Size)**

Kinnear "Goliath" Slat

The Kinnear "Goliath" Slat (No. 9) has been especially designed to provide an exceptionally strong rolling curtain to accommodate extremely large openings or smaller openings requiring an exceptionally strong barricade. As can be seen by the above full size illustration, and as its name implies, it's a giant in proportions and makes possible the most rugged rolling door ever offered. Practically an impenetrable barrier! It's roll formed of either steel (14 or 16 U.S. Gauge) or aluminum (12 or 10 B & S Gauge) and embodies the same design features that have earned for Kinnear Interlocking Slat Type of Rolling Door world acclaim.

Kinnear slats—steel (zinc-coated*) aluminum and other metals



As Slat Nos. 3, 5, 17, 7 and 8 are designed for special applications, details will be furnished at time of recommendation. Kinnear also fabricates slats for special uses (such as machine or electrical equipment covers, truck doors, incinerator plant closures, etc.); details will be submitted on request.

for extra weathertightness

Where a rolling door of maximum weathertightness is desired one of Kinnear's flat slats (No. 5 or No. 17), illustrated above, has exceptional merit. They form a good-looking curtain that presents a close-fitting, flat-surface exterior, giving exceptional water-shedding qualities and permitting the use of a tighter weather-stripping provisions in the guides (see page 15). Their design results in a curtain strength and coiling action equal to the curved type slat of comparable gauge.

zinc coated dual protected

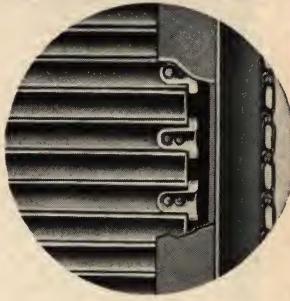
To just specify "galvanizing" may mean any type or amount, as low as 2/10 to 6/10 of an ounce per sq. ft. (commercial coating). Kinnear high grade zinc base coating applied by the hot dip process fuses into the pores of the steel (1 1/4 ounces per sq. ft. of flat metal in accordance with ASTM Standards—more than twice as much as some commercial coatings). Kinnear heavy zinc coating is prepared for painting by the application of a phosphate coating (Kinnear Paint Bond) which acts as a bond between the zinc and paint.

Painting can be done at once, using your own paint specification and colors. Paints and enamels deteriorate, chip and wear off; therefore the heavy base zinc coating fused into the steel is vital to long life and resistance to corrosion.

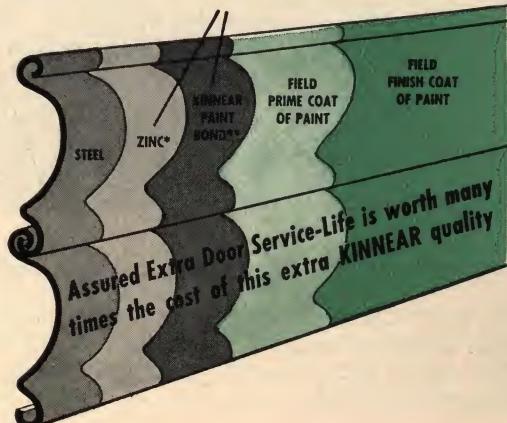
There is no better protection for rolling doors on the market than Kinnear Hot Dip 1 1/4 oz. per sq. ft. of flat metal zinc coating, plus Kinnear Paint Bond (phosphate coating) for paint adhesion, plus field coats of paint.

endlocks

Alternate interlocking slats, forming the curtain of a rolling door have malleable iron endlocks dimpled—riveted to the ends. They retain slats in place, maintaining curtain alignment, and protect the ends of the slats from rubbing in the guides. See page 14 for windlocks.



Specify KINNEAR Dual-Protected Steel Slats



Kinnear Service Doors are what their name implies—doors for every-day general use. They are designed to serve in openings that require a good closure but do not require Underwriters' Labeled fire doors and where fire protection is not a prime consideration. Having a flexible curtain built of

metal they provide an unusually rugged barricade, offering extra protection against intruders and weather. While not built to be fire doors, they are generally constructed of incombustible materials and consequently, when doors are closed, prevent spread of small fires and delay spread of large ones.

type of operation

■ manual operation

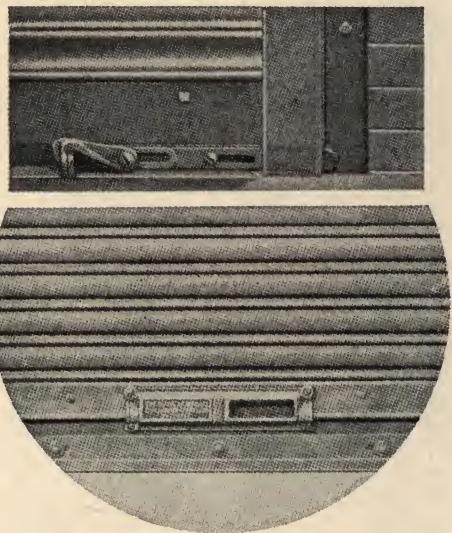
For small size doors (with a maximum dimension of 12 ft. or a maximum area of 100 sq. ft.), mounted on the face of the wall or in reveals in the jambs, convenient lifting handles are provided on the bottom plate. Counterbalance minimizes raising exertion. Usually mechanical operation is recommended for doors over 80 sq. ft. in area.



■ chain hoist (mechanical) operation

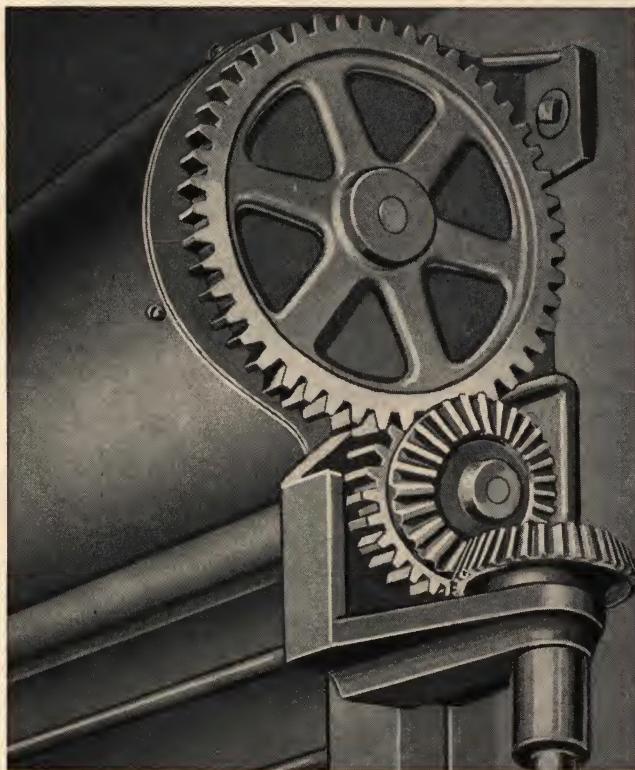
For large doors, operation by hand chain, sprocket and reduction gear can be arranged for operation from either side of wall. Estimated maximum pull required is 35 lbs.

Top Right: Locking of the manually operated doors is accomplished by padlocking the slide bolt, which contacts a stop in the guide, to the clip welded on the bottom plate of the door. This can be arranged for locking on either, or both sides of the door. Right: Showing the convenient lifting handle provided on the bottom plate of all manually operated push-up doors.



■ crank (mechanical) operation

When preferred, doors can be operated by a hand crank, shafting and reduction gear on door side of wall, both sides of wall, or only on side opposite door. Estimated maximum exertion required on crank is 20 lbs. Detachable crank prevents unauthorized operation.





advantages

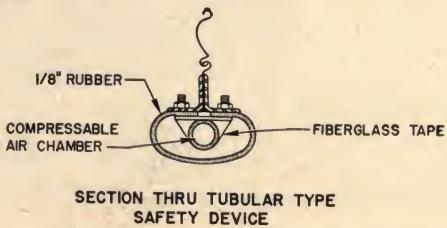
saves time	increases production
saves labor	saves building heat
pays for itself	allows remote control

controls

Standard magnetic switch. Standard stations three push buttons labeled "open," "close," "stop." Limit switch automatically stops motor, sets brake. Special switches and key-operated push buttons, where required, can be furnished as an extra.

combination safety device and rubber weatherseal

The Kinnear automatic door-reversing safety device combined with rubber weatherseal (available as extra equipment) minimizes the possibility of injury to persons or vehicles, when door is lowered. A weather-strip along the entire length of the bottom edge of door, if compressed by a moderate pressure against any obstruction, causes the door to stop its closing travel . . . and can be arranged so that it will also automatically revert to its fully open position. Device also serves as weatherseal for bottom of door. When desired specify by the statement: "Doors to be equipped with an automatic door-reversing safety device combined with rubber weather seal."



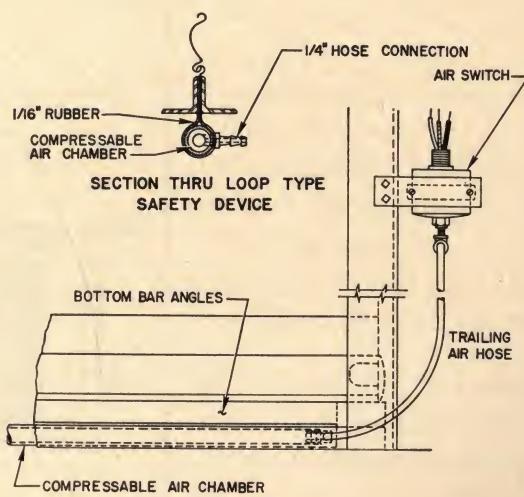
■ electric operation

Kinnear Power Units and controls for electric remote operation save man-time and effort, save building heat, decrease open door hazards. Doors controlled by push button stations, or other practical means. Kinnear power equipment can be used to convert existing manually operated doors at moderate expense.



emergency manual operation

Pulling down on auxiliary chains engages the emergency chain operator, also cuts out electrical operation and automatically releases the brake. The door is then opened or closed by chain control. The power unit is returned to normal electrical operation by simply pulling down conveniently located release chain. This method is both simple and positive. It eliminates inconvenience in case of power failure.



Kinnear meets these 9 major requirements

1. "REGISTERED" life extension



Kinnear Doors and other Kinnear products, after installation, can be kept in regular daily service for the life of the building; need never be discarded for lack of replacement parts.

Complete details and drawings of every order for Kinnear Rolling Door are kept in permanent, fireproof vaults—an added protective service that has proved extremely valuable to many users, throughout the years.

In case of accidental damage or other mishap, Kinnear always has ready reference to all parts of any Kinnear Door ever installed, so that accurate replacements can be made quickly.

New parts for Kinnear Doors installed fifty years ago can be furnished today because of this exclusive Kinnear service. Parts are frequently supplied for Kinnear Rolling Doors in continuous daily use for 30, 40, or 50 years.

This Kinnear service is a form of "life extension" that protects your door investment far into the future.

2. quick, easy operation



3. space saving



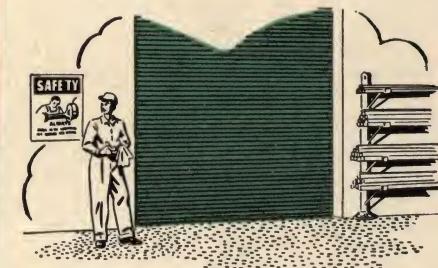
4. greater durability



5. fire protection



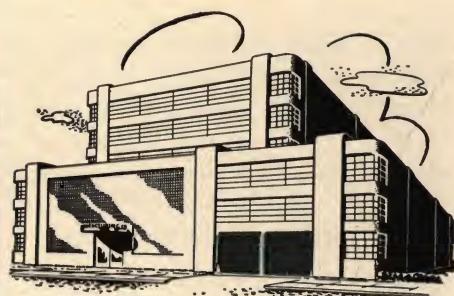
6. maximum safety



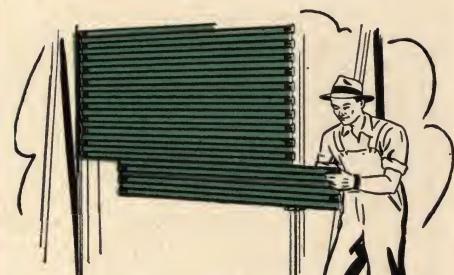
7. general protection

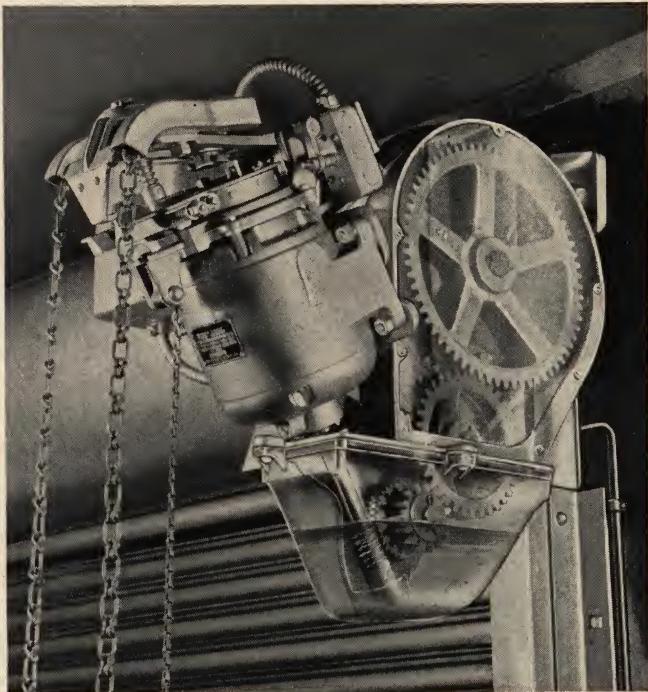
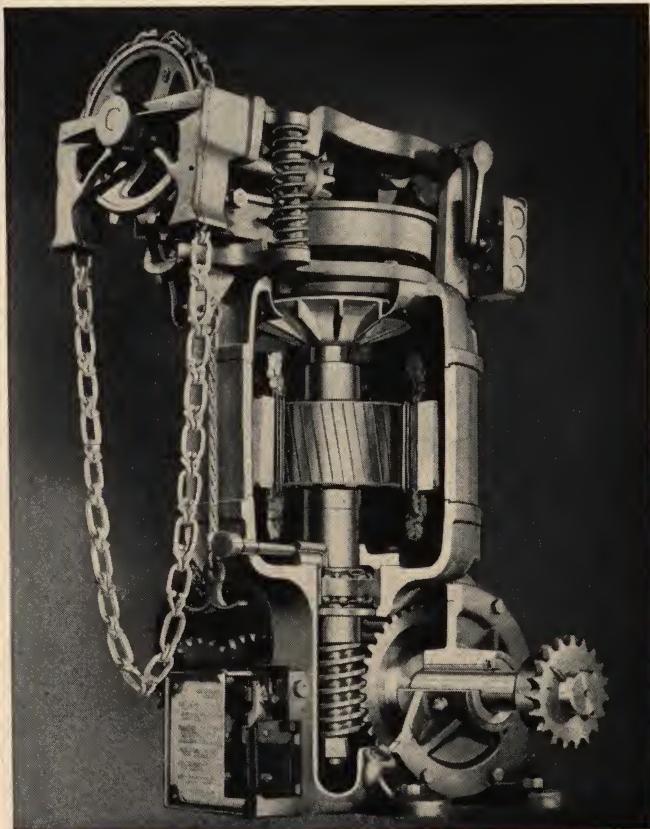


8. neat appearance



9. economical installation



bracket mounted type A**wall mounted type B**

The Kinnear Bracket Mounted Type A Power Operator is a rugged, gear-driven power unit available for any standard type of electric current. It is especially designed (in two different sizes; see next page) for doors with a maximum area of approximately 315 sq. ft. of No. 20 U.S. gauge curtain.

Attached to the bracket in which the curtain coil is journaled, the entire mechanism (motor, reduction gearing, magnetic brake, limit switch and emergency manual operation) requires very little extra room.

The Kinnear Bracket Mounted Type A Power Unit is furnished in two different sizes:

1. **Small**, with special $\frac{1}{2}$ hp motor. This size is made for doors with a maximum area of approximately 180 sq. ft. of No. 22 U. S. gauge curtain.
2. **Large**, with 1 hp motor. This size is made for doors with a maximum area of approximately 315 sq. ft. of No. 20 U. S. gauge curtain.

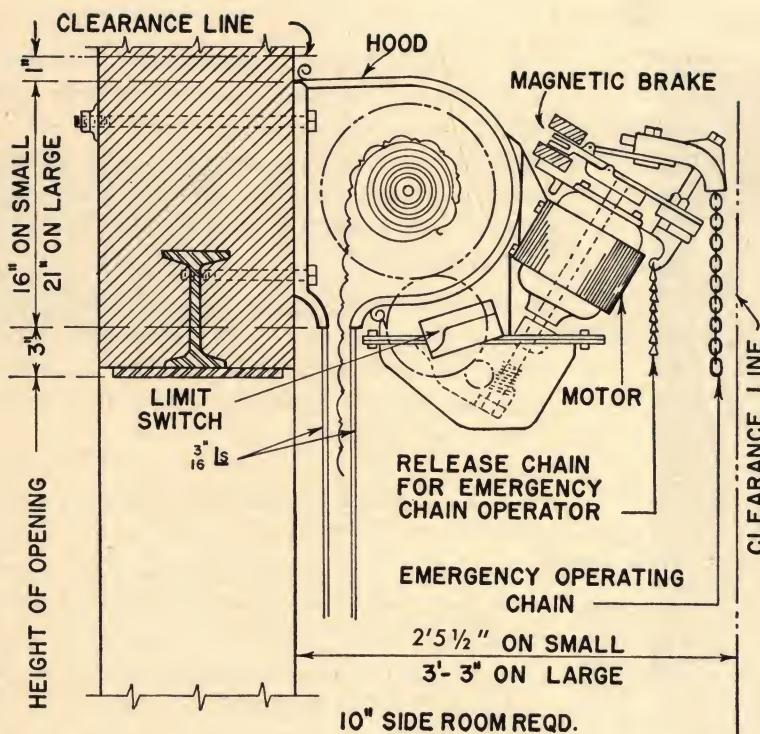
The Kinnear Wall Mounted Type B Power Operator is a remarkably flexible, compact heavy duty power unit for different current characteristics. It can be adapted to a larger motor, consequently will operate doors exceeding the sizes covered by the Bracket Mounted Type A.

It is designed for greater flexibility of mounting, to provide for conditions where obstructions or limited clearances prevent mounting in the more conventional ways. (See variations of mounting shown on the following page.)

Type B is usually furnished with a roller chain and sprocket drive from the motor element to the gearing that actuates the barrel on which the curtain coils. There are so many combinations of drive, power, location of motor, mechanism and control, that a Kinnear power unit can be adapted to a wide variety of doors and opening requirements. Consult Kinnear for specific recommendations.

The Type B electric power operator can be added to existing manually operated Kinnear doors. When installing doors that may later be motorized, however, make certain that sufficient clearances are kept available.

electric operation

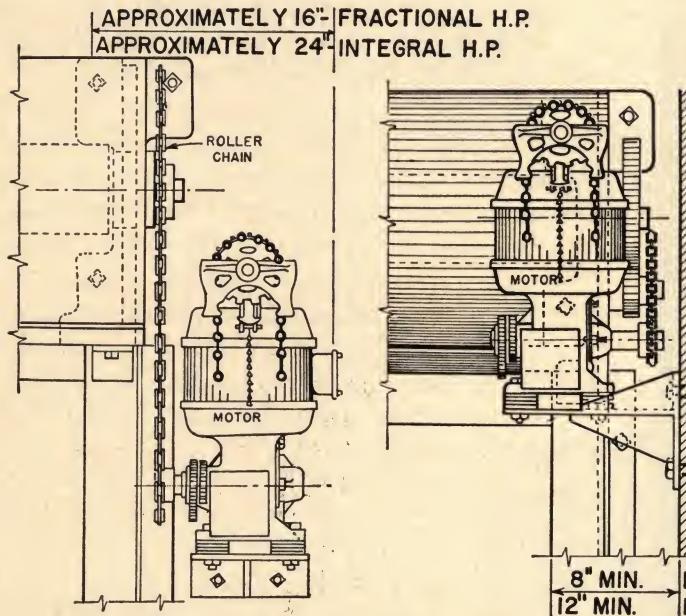


Kinnear Type C Power Operator

The Kinnear Type C Power Operator presents the "last word" in a removable — motor type unit (removal does not disturb the auxiliary hand-chain operator) especially designed for rolling door application. A few of the features of its design that makes it unlike any other unit on the market are:

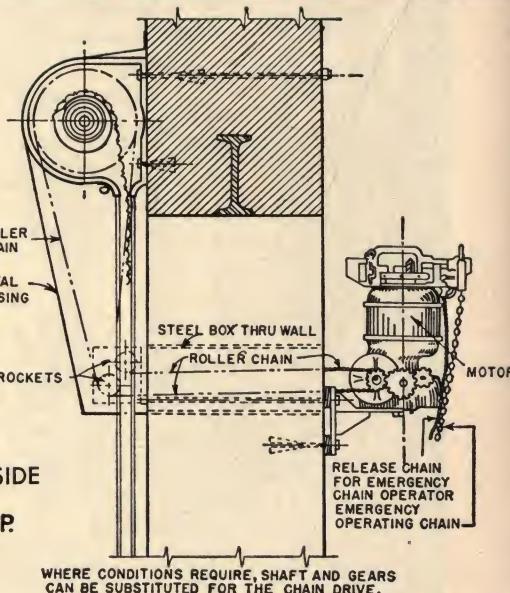
- Designed for either wall or bracket mounting — in either vertical or horizontal positions.
- Easily installed — with field control wiring to a terminal strip.
- Thermal protection against overload that cuts-out motor before damage. Operates faster than overload relays in starters.
- New, high-efficiency design of worm gearing.
- Centrifugal clutch which transmits motion of the motor to the door without shock — easy starts — prevents stalling the motor or damage to it from overload.
- Offered in two sizes — with motor capacities from $\frac{1}{3}$ -HP to 3-HP.

Kinnear Wall Mounted Type B Operator

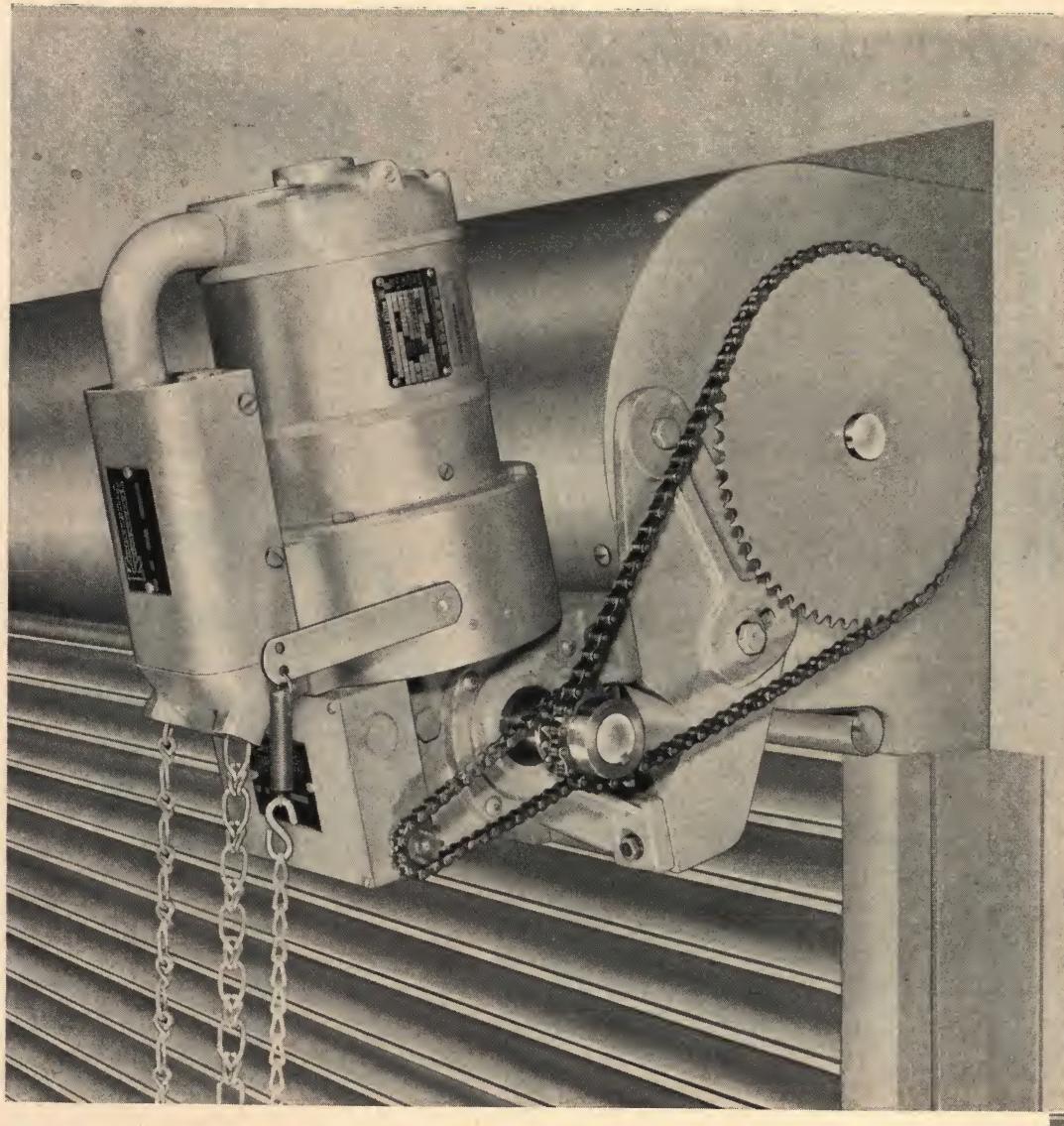


UNIT LOCATED BELOW TOP OF DOOR. USE CLOSE-COUPLED UNIT WHEN REQD. SIDE ROOM IS NOT AVAILABLE.

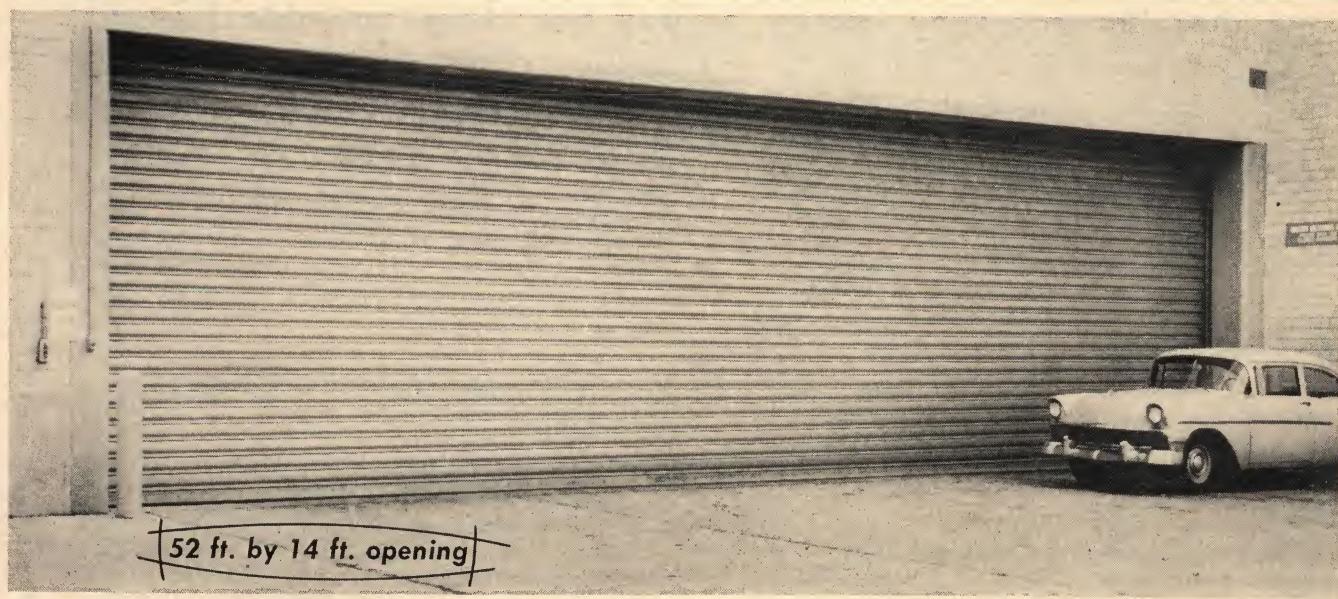
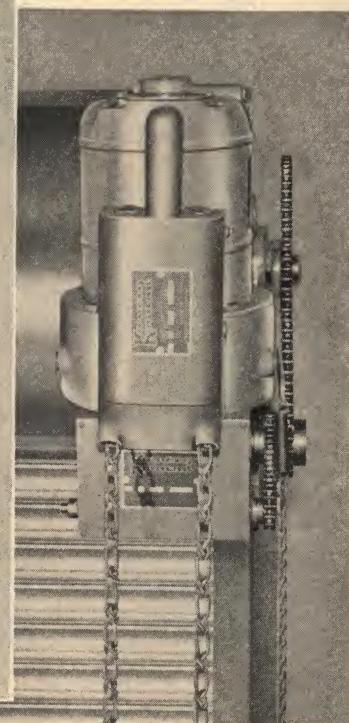
UNIT CLOSE-COUPLED TO DOOR MECHANISM



UNIT LOCATED ON WALL OPPOSITE DOOR

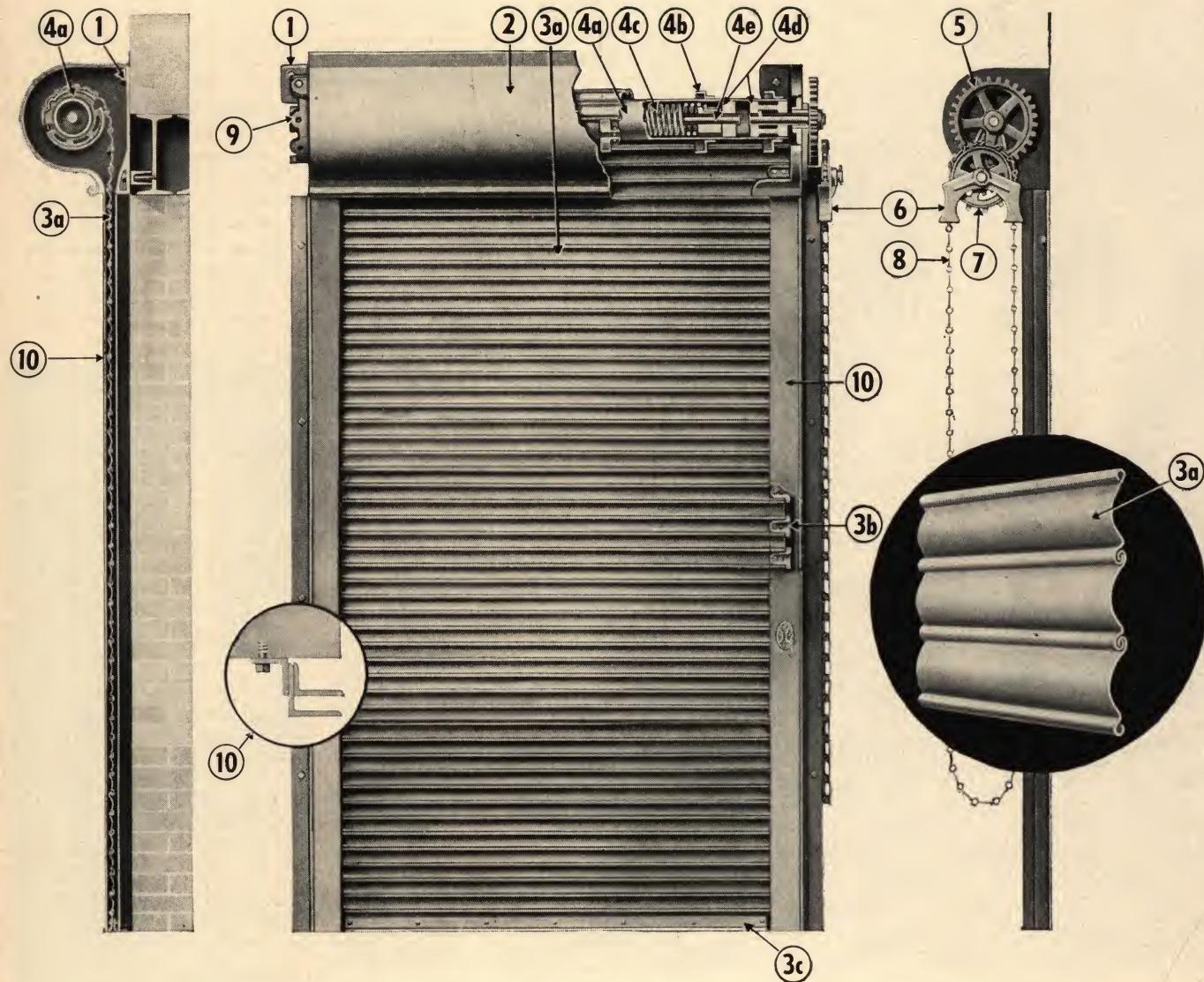


View below of Kinnear Type "C" Operator illustrates the exceptional compactness of the unit and how it can be mounted on a Kinnear Rolling Door in the minimum of side and head clearance. Should removal of the motor be required at any time, the auxiliary hand chain operator is not disturbed, permitting convenient operation of the door by the hand chain after pulling the manual engagement chain.



A Kinnear Steel Rolling Door built of "Goliath" Slat (No. 9) described on page 4.

construction features — steel rolling door



be sure that the door you specify or buy has these valuable features

1 brackets The gray iron castings which support the curtain coil and spring barrel at either end. Proportioned with large factor of safety and cast in special molds to give uniformity. Made of high-test gray iron of uniform texture. All surfaces are smooth and even. Bracket mouth and stops are at an established distance between center and back of bracket, thus providing a throat which permits smooth operation without friction and eliminates the excessive drag of curtain over the stops. Bearings of large proportions are provided for barrel spindles.

2 hood The hot galvanized sheet steel cover which fits contour of brackets and encloses the curtain coil. Neatly formed and suitably reinforced with beads or flanges to prevent deflection.

3 curtain is composed of:

a interlocking galvanized (or aluminum) slats
(See page 4 & 5 for profile of commonly used sizes and advantages of their unique design.)

b endlocks Dimple-riveted to ends of slats. These are called "continuous" when they reinforce both ends of all slats; "alternate" when on every other slat. They are made of malleable iron and retain slats in place. Also protect slats against rubbing in the guides and maintain the curtain in alignment.

c bottom bar Usually formed of two angles and a half slat to reinforce lower edge of curtain against wind pressure. Angles of equal weight balance and hang freely on the curtain to eliminate friction and possible binding in the guides. Provides contact for the curtain against the sill when the door is closed and against both front and back stops on the bracket when the door is open.

4 counterbalance barrel is composed of:

a spring barrel or pipe which:

- (1) encases the counterbalance mechanism
- (2) serves as the load-carrying beam
- (3) provides an axis around which curtain coils
- (4) provides the same anchorage simultaneously for the revolving ends of all counterbalance springs

It is of heavy steel of sufficient diameter and thickness to avoid deflection in excess of .03 inches per lineal foot of barrel.

b rings Of malleable iron of involute shape and split design are used where door size requires. They are designed to coil the curtain with a uniformly increasing diameter. Size provides an initial diameter sufficient to insure uniform and constant counterbalance for all points of the door travel.

c counterbalance springs One or more depending on size of door. Oil-tempered helical springs wound from specially heat-treated steel provide a permanent means of counterbalance. Each spring is heat treated after winding and tested for each job. The fixed ends of all springs for each door are anchored to the same tension rod, which enables all springs to be adjusted uniformly and simultaneously.

d barrel plugs For connecting the ends of the springs to pipe and tension rod and of special design for eliminating the usual excessive strain at the spring ends. Of heavy cast iron with end plug machined to fit ends of the barrel. (See Adjusting Wheel Assembly diagram below.)

e shafting Of cold-rolled polished steel to minimize friction in all bearings. The tension rod of ample size to hold the fixed ends of all springs and thus carry the entire torsional load of the spring counterbalance.

5 reduction gearing Suitable reduction gearing cast with teeth machine-molded from machine-finished patterns. These may be spur gears as shown, bevel gears for thru-wall operation, or worm gears used with power operators. Designed with a high factor of safety and a reduction ratio individually suited to the door operated.

6 chain guard Sprocket wheel provided with a guard, especially designed to guide the hand chain and prevent it from jumping the sprocket teeth.

7 sprocket For hand chain and may be cast with or without small spur pinion.

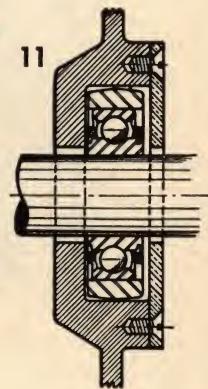
8 operating chain Of design and strength to prevent stretching and to provide a comfortable hand grip. Heavily galvanized.

9 adjusting wheel Mounted outside of bracket and on end of tension rod, used to apply and hold tension on every one of the counterbalance springs simultaneously and in same proportion. Note detailed description below.

10 guides Fabricated from structural steel angles. Especially adaptable for doors exposed to heavy wind pressure. Designed with groove depths varying from 2 to 8 in., depending upon the width of the door, and packed out from the face of the wall in order to accommodate the specially designed throat of the bracket.

11 high quality bearings

To facilitate long life and smooth, easy operation, the bearings at both ends of the barrel which supports the curtain are self-lubricating graphite bearings or grease-sealed precision ball bearings, depending upon the size of door. This is standard Kinnear equipment and typifies the extra care and quality that are incorporated in a Kinnear Door to assure maximum life and operating economies.

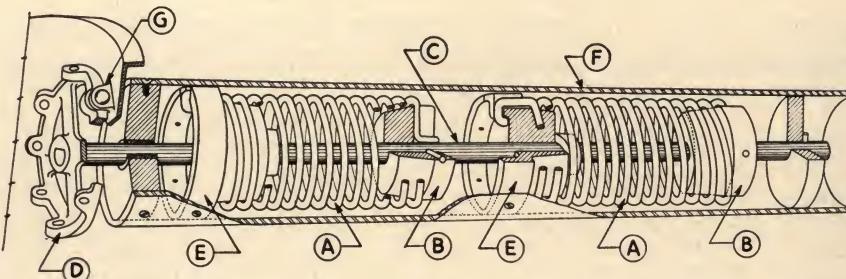


Kinnear adjusting wheel and spring assembly

More than fifty years ago Kinnear adopted a unique method of counterbalance spring adjustment that assures maximum efficiency and uniform tension on the doors' counterbalance spring or springs. One end of each counterbalance spring (A) is fitted on with cast plug device (B) and attached directly to a single tension rod (C). The end of this tension rod has an Adjusting Wheel (D) on the exterior of the door bracket. The other end of each of the counterbalance springs is fitted with a cast plug device (E) that is anchored to the spring barrel (F). Thus for each spring one end is attached to the same spring barrel and the other end is attached to the same tension rod.

With the curtain coiled, the required initial tension can be applied by turning the adjusting wheel properly and securing it to the bracket (G). This adjusting wheel is well anchored to the bracket by a rivet pin; Kinnear does not trust a pawl attachment in this important place as the pawl may or may not drop into secure position. When the adjusting wheel is turned it turns one end of each spring in the same direction thus applying the same torque simultaneously and uniformly to all springs.

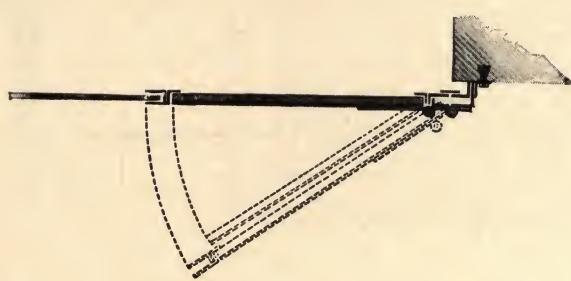
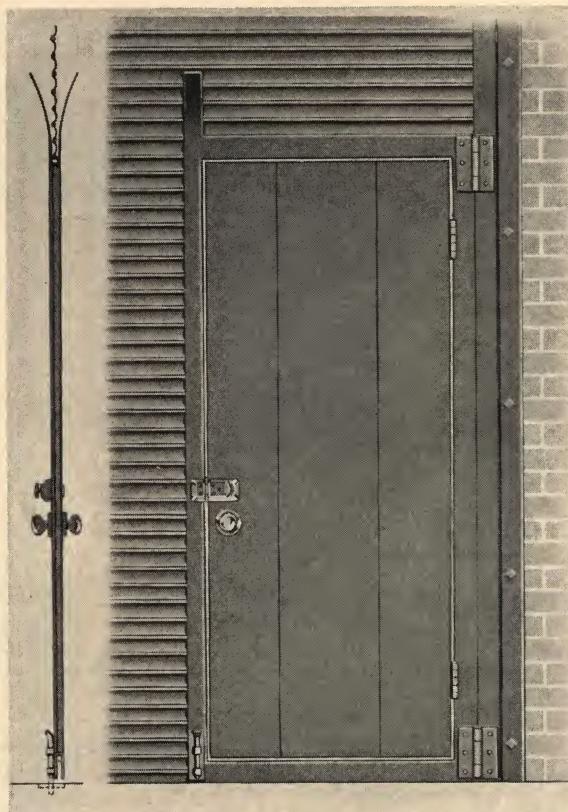
As soon as the curtain is lowered sufficiently to turn the spring bar-



rel one complete revolution, the ends of all springs being attached to the barrel will operate and make one complete turn. Consequently, when the curtain is completely uncoiled, the barrel has turned the ends of all springs a corresponding amount and stressed all springs in identical proportion.

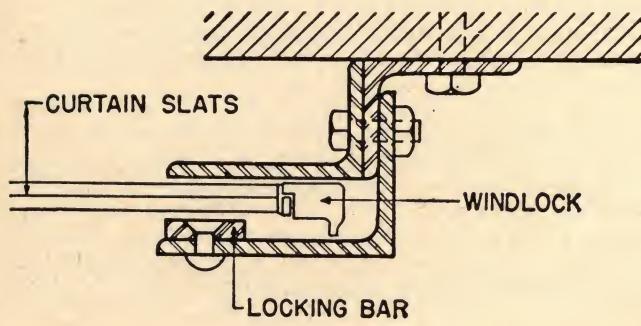
With this arrangement the total tension of the counterbalance can be increased or decreased, easily and without any disassembly, whenever the need requires. It also insures uniform and most effective counterbalance action of the springs and maximum service life of the doors' complete counterbalance mechanism. The above is true for any number of springs used in the barrel—SIMULTANEOUS and UNIFORM SPRING ADJUSTMENT FOR ALL!

auxiliary equipment



■ windlocks

Illustration shows how endlocks are designed with lug, which engages with a locking bar attached to the guide. This prevents curtain from leaving guide because of deflection from tremendous wind pressure or other forces. Provided wherever door is to be subject to extreme wind pressure. Otherwise type of endlock described on page 5 is used.



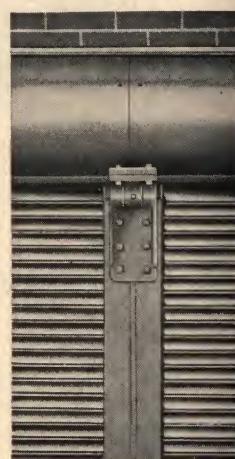
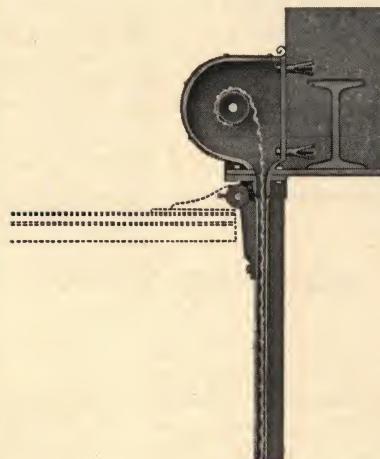
■ auxiliary equipment

■ wicket or pass door

The wicket or pass door provides an entrance without raising the major door. It is an ideal arrangement where there is no access to the building other than by the main opening. The wicket is built of an angle frame covered with a steelplate and equipped with heavy strap hinges and massive latch and lock. It is hung on a frame hinged to the side guide. The frame is constructed of angles forming grooves in which the rolling door travels. When the rolling door is raised, the wicket door and frame are swung back against the wall.

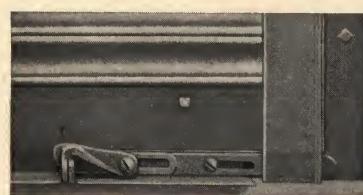
■ intermediate movable post

Very wide openings can frequently be more conveniently closed by a number of doors than by a single large one, using between the doors movable posts with the edges constructed to form double grooves. Hinged to the bracket, these posts are swung up out of the way when the doors are open. Ordinarily the posts swing perpendicularly to the plane of the curtain, but can be arranged to swing obliquely; slide to the side of the opening by a trolley on a horizontal overhead track; or other methods suited to the individual needs. Details on special arrangements will be submitted upon request.



■ door locking details

Kinnear Service doors can be locked by padlocking slide bolt (manual operator), chain (chain operator), wheel (crank-shaft operator), by key-operated control button, or by breaking switch and padlocking emergency chain (motor operator).



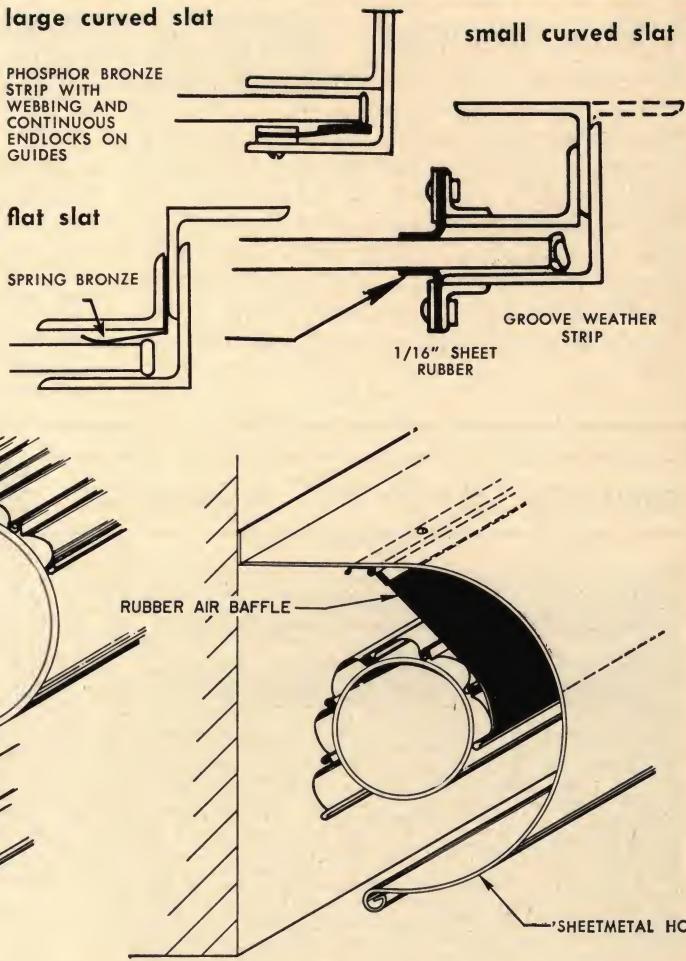
Manual lock



Crank lock

■ weathering provision

Kinnear service doors are designed for close fit, in keeping with smooth, trouble-free operation. Where additional protection against wind and weather is desirable, weathering provisions are available at extra cost. These Kinnear features minimize water and air infiltration by means of weather stripping that is attached continuously to both sides of the groove angle, to contact both sides of the curtain, or a spring bronze lining mounted inside the groove, as shown at the right. Also to insure close seating at the sill a choice of either loop type or tubular type rubber astragal (see lower left illustrations) is attached to the bottom of the door, between the two bottom angles. To prevent infiltration at the top of the door a continuous weather-strip is clamped along lintel (see illustration below); or space around the barrel can be closed by a rubber air baffle (shown at lower right) that is attached to hood connection and extends the full length of the barrel.



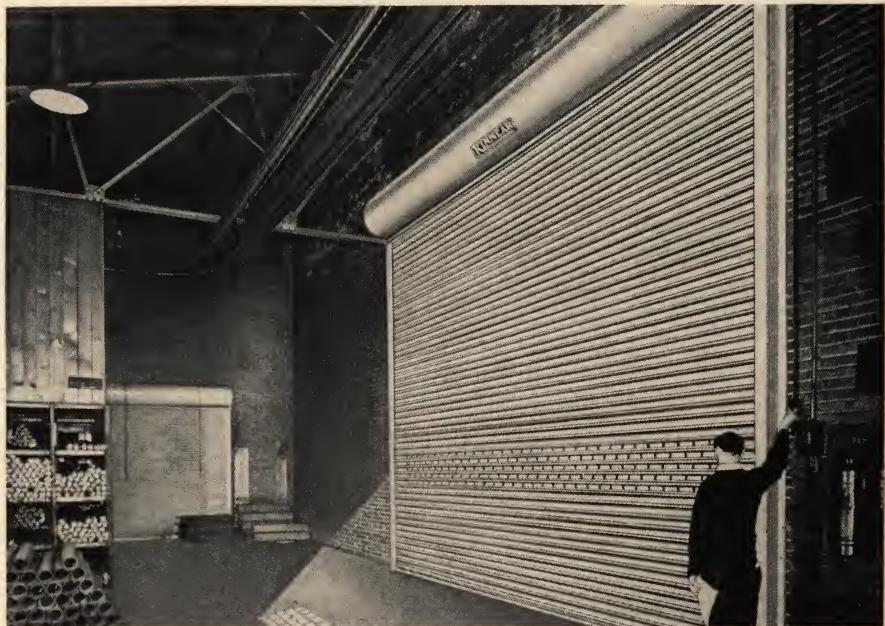
Kinnear rolling doors—with vision-lights

Another Available Feature To The Time-Proved Efficiency Of Kinnear Rolling Door Design—where it's desirable to have light and visibility.

Basic structural design of the standard Kinnear Rolling Door remains unchanged. A rugged and durable barricade that's extra tough to penetrate.

Narrow transparent panes of clear Plexiglas (or similar plastic) can be provided at an extra charge in one or more interlocking steel slats in the curtain of the Kinnear Rolling Door. With the fenestration made possible with these "Window Slats" at or near eye level, anyone inside the building can readily see outside without opening the door. Also the windows admit daylight when the door is closed. The curtain of interlocking steel slats travel in steel jamb guides, coiling above the lintel on a barrel that contains the counterbalance mechanism. The curtain is heavily galvanized and then given a special Kinnear Paint Bond treatment (See pages 4 and 5 for complete details). In every detail it is built to give years of the maximum operating efficiency plus rugged durability and is built in any practical size for old or new buildings, and for motor or manual operation.

Note how the vision area permits the man operating the door to see the approaching vehicle. Daylight is also admitted.



Kinnear door types sizes and clearances

■ basic construction

The curtains of Kinnear Service doors are constructed of interlocking slats, of heavily galvanized open-hearth steel, aluminum, bronze or stainless steel and are equipped with endlocks. Curtain is coiled upon a barrel journaled in brackets of heavy cast iron (or steel plate for very large doors) and travels in steel guides. Counterbalancing is provided by helical springs enclosed in the barrel. A metal hood covers the barrel and coil.

■ mounting methods

Face mounting is usually standard where headroom above lintel is sufficient for mounting encased brackets and coil. Edges of guides are clear of the face of the opening jambs.

Under-lintel mounting is usually standard where headroom above lintel is limited. Mechanism mounted in opening; brackets and coil located on the jambs or in reveals in the jambs.

■ tailored to any size

Each Kinnear service door is built for a specific job. Size is limited only by practical engineering and operation standards.

manual "push up" operation

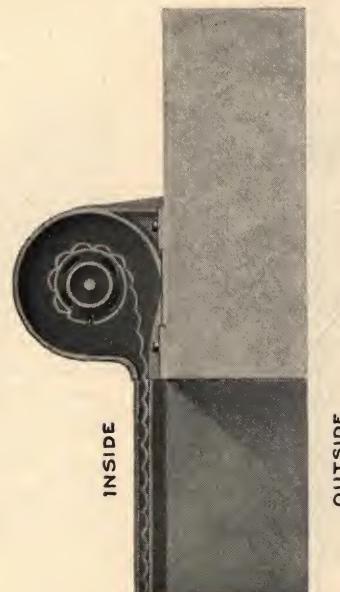
model FM-10

face mounting

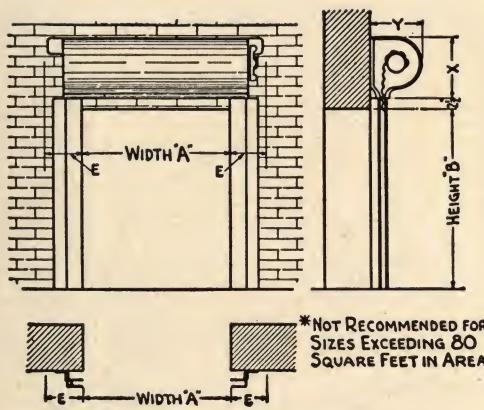


- Manually operated by lift handle in bottom rail. Locked by slide bolt.
- Curtain hot-dip galvanized and given Kinnear Paint-Bond treatment.
- Guide channels and mechanism mounted on face of wall.
- Provides clear unobstructed opening—full width and height.
- Easy, accessible adjustment of counterbalance spring.

For doorways or window openings. Counterbalance mechanism and curtain coil, enclosed in hood, is mounted on face-of-wall above lintel. End locks on curtain retain interlocking slats in place and maintain curtain alignment. Curtain is fitted with lifting handles on bottom rail. Guide channels are on wall face, unobstructing the clear opening width. Suitable for openings up to 12'4" x 7'4" in any type building. See pages 16 to 20 for further specifications.



Note: Dimensions on this page and page 13 are for general reference only and not for construction purposes. For special requirements refer to Engineering Dept.



Width A*	6'	7'	8'	9'	10'	11'	12'								
	X	Y	E	X	Y	E	X	Y	E	X	Y	E			
To-4'-0"				14	13	6		17	16	6	17	16	6		
To-5'-0"		14	13	6			16	15	6		17	16	6		
To-6'-0"	13	12	6				16	15	6		19	18	6		
To-7'-0"				16	15	6		18	17	6		19	18	6	
To-8'-0"					16	15	6		18	17	6		19	18	6
To-11'-0"					16	15	6		18	17	6		19	18	6
To-12'-0"					16	15	6		18	17	6		19	18	6
To-13'-0"	13	12	7	16	15	7	18	17	7	18	17	7			

INCHES

Note: X dimension is bracket height. Brackets placed 2 1/2" above lintel. For door mounted outside add 1" to X dimension.

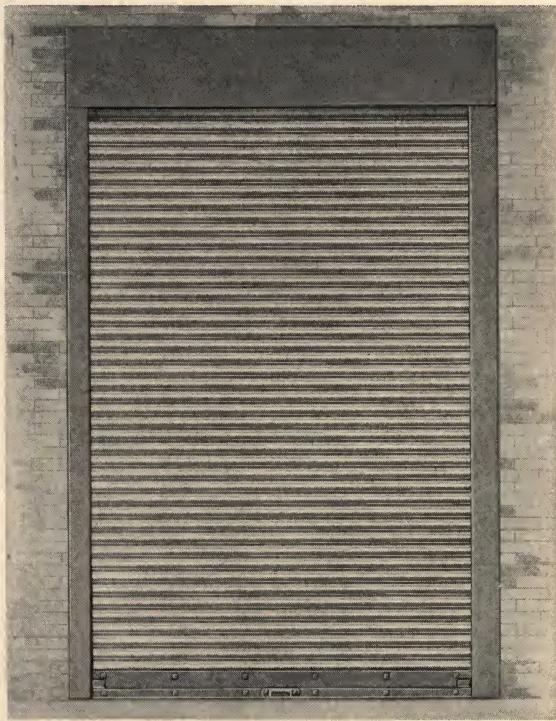
** Inclusive.*

Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.

manual "push up" operation

model BM-10

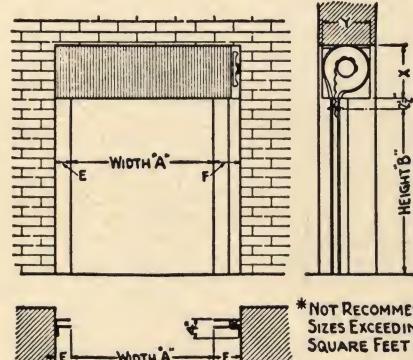
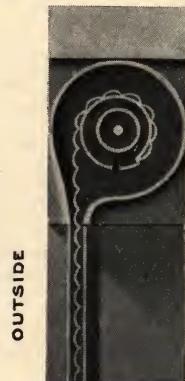
under lintel mounting



Height B*	6'	7'	8'	9'	10'	11'	12'
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
To-4'-0"				15 13 3 4			
To-5'-0"	14 11 3 4	15 13 3 4		17 15 3 4	18 16 3 4	18 16 3 4	
To-6'-0"			17 14 3 4			20 18 3 4	
To-7'-0"					19 17 3 4		
To-8'-0"	14 11 3 5	15 13 3 5	17 14 3 5	19 17 3 5	19 17 3 5	20 18 3 5	20 18 3 5
To-11'-0"	14 11 3 5	17 14 3 5	18 16 3 5	19 17 4 5	19 17 4 5	20 18 4 5	20 18 4 5
To-12'-0"	14 11 4 5	17 14 4 5	18 16 4 5	19 17 4 5	19 17 4 5	20 18 4 5	20 18 4 5

*Inclusive.

Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.



*NOT RECOMMENDED FOR
SIZES EXCEEDING 80
SQUARE FEET IN AREA.

For doorways or window openings. Counterbalance mechanism and curtain coil is mounted below lintel in door opening between jambs. Guide channels are either mounted on jambs in the opening or in reveals in the

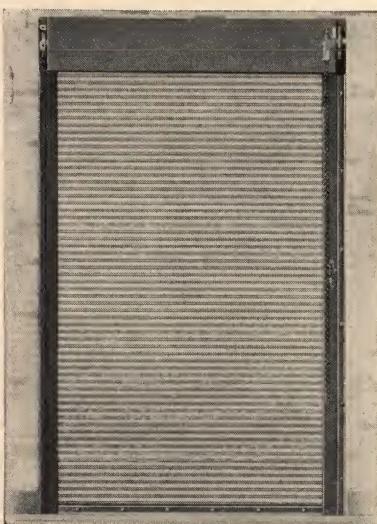
jambs. Mechanism concealed when fascia plates are used. Curtain fitted with lifting handles in bottom bar. Suitable for openings up to 12'4"x8'8" in any type building.

chain hoist operation (mechanical)

model BH-20

under lintel mounting

channels are either mounted on jambs or in reveals in jambs. Hand operating chain and reduction gearing mounted at side of opening on face of wall.



Height B*	To-8'-5"	9'	10'	11'	12'	13'	14'	15'	16'
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
To-7'-0"	13 10 4 5	14 11 4 5	14 11 4 5	14 12 4 5	16 13 4 5	17 14 4 5	17 14 4 5	17 14 4 5	17 15 4 5
To-11'-0"	13 10 5 6	14 11 5 6	14 11 5 6	16 12 5 6	16 13 5 6	17 14 5 6	17 14 5 6	17 14 5 6	17 15 5 6
To-12'-0"	14 11 5 6								
To-13'-9"		16 12 5 6	16 12 5 6	16 13 5 6		17 14 6 8	17 14 6 8	17 15 6 8	18 15 6 8
To-14'-9"	14 12 5 6	16 14 5 6	18 15 5 7	19 16 5 7	19 16 5 7	19 16 5 7	19 17 5 7	19 17 5 7	20 18 5 7
To-15'-0"	16 14 5 6	17 14 5 6							20 18 6 8
To-16'-0"					18 15 6 8	19 16 6 8	19 16 6 8	19 17 6 8	
To-18'-0"	17 14 6 8								22 19 6 8
To-20'-0"		18 15 6 8							
To-22'-0"	17 15 6 8				20 18 6 8	22 19 6 8	22 19 6 8	23 20 6 8	
To-23'-0"	17 15 7 9	18 15 7 9	18 15 7 9	20 18 7 9	22 19 7 9	22 19 7 9	22 19 7 9	23 20 7 9	

*Inclusive.

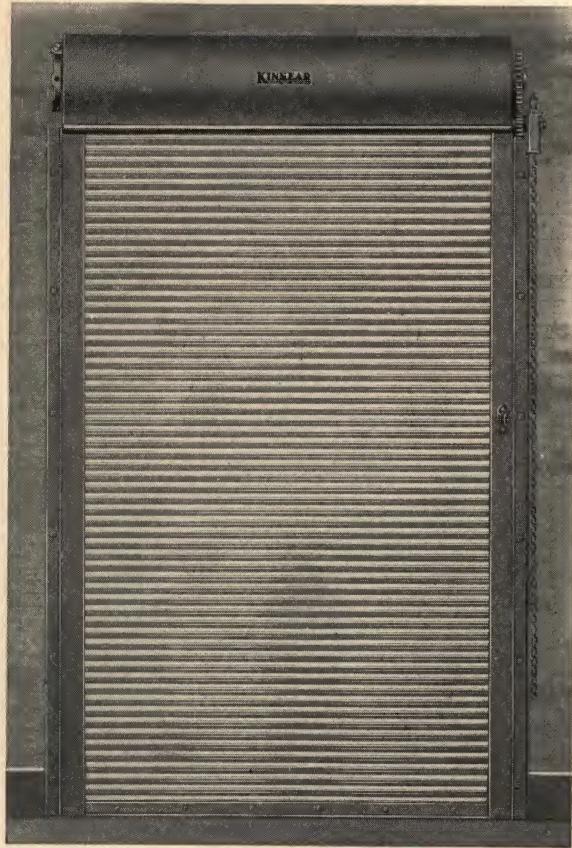
Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.

Kinnear door types sizes and clearances—continued

chain hoist operation (mechanical)

model FH-20, FH-61

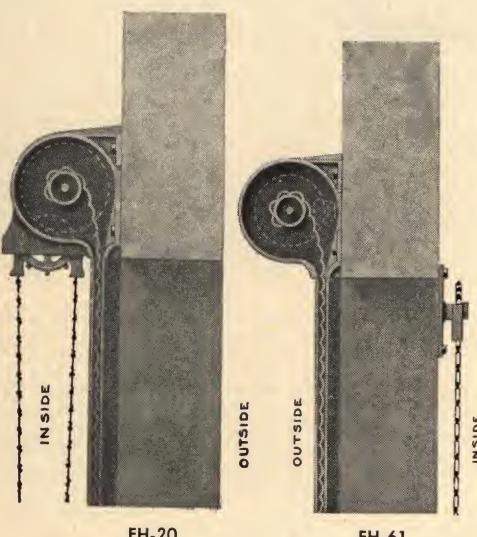
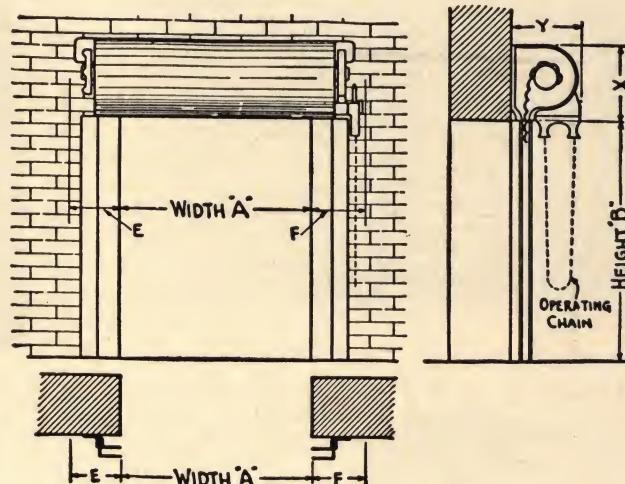
face mounting



- Operated by hand chain and reduction gearing—locked by locking chain in keeper.
- Curtain hot-dip galvanized and given Kinnear Paint-Bond treatment.
- Guide channels and mechanism mounted on face-of-wall.
- Provides clear unobstructed opening—full width and height.

For doorways exceeding a height practical for manual push-up operation and where headroom above lintel is available. Counterbalance and curtain coil, enclosed in a hood, is mounted on face of wall above lintel. Guide channels are on face-of-wall, unobstructing the clear opening width. Model FH-20 has sprocket and reduction gearing, for hand chain operation, located at end of curtain barrel. See pages 16 to 20 for further specifications.

FH-61 has sprocket and hand operating chain on inside wall when door is mounted on outside wall or vice versa.



Note: Dimensions are for general reference only and not for construction purpose. For special requirements refer to Engineering Dept.

Height B*	To-8'-5"	To-8'	To-10'	To-11'	To-12'	To-13'	To-16'
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
To-11'-0"	13 13 6 8	13 13 6 8	13 13 6 8	15 15 6 8	15 15 6 8	15 15 6 8	15 15 6 8
To-12'-0"		13 14 7 8	13 14 7 8			15 15 7 8	17 16 6 8
To-13'-0"	13 14 7 8		15 15 7 8	15 15 7 8	15 15 7 8		17 16 7 8
To-13'-9"		15 15 7 8					17 17 7 8
To-14'-9"						19 18 7 8	
To-15'-11"					19 17 7 8	19 17 7 8	
To-17'-0"	16 15 7 8	17 16 7 8	17 16 7 8			18 18 7 8	21 19 7 8
To-19'-0"						19 19 7 8	
To-20'-0"					18 19 7 8		
To-22'-0"	17 17 7 8	17 17 7 8	18 19 7 8			21 20 8 9	21 20 8 9
To-24'-0"	19 19 7 9	21 19 8 9	21 19 8 9	21 19 8 9		21 20 9 10	21 20 9 10

Height B*	To-18'-11"	To-20'-11"	To-21'-11"	To-22'-11"	To-24'-0"
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
To-10'-6"	19 18 6 8	19 18 6 8	21 20 7 8	21 20 7 8	21 20 7 8
To-12'-8"	19 18 7 8	19 18 7 8	21 20 8 9	21 20 8 9	21 20 8 9
To-13'-9"	19 19 7 8	24 22 7 8			
To-17'-0"	21 20 8 9		24 22 8 9	24 22 8 9	26 24 8 9
To-20'-0"			24 22 8 9		
To-22'-0"	24 22 8 9		26 24 12 9	26 24 12 9	26 24 12 9
To-24'-0"			26 24 12 10	26 24 12 10	26 24 12 10

Note: For door mounted outside add 1" to X dimension.

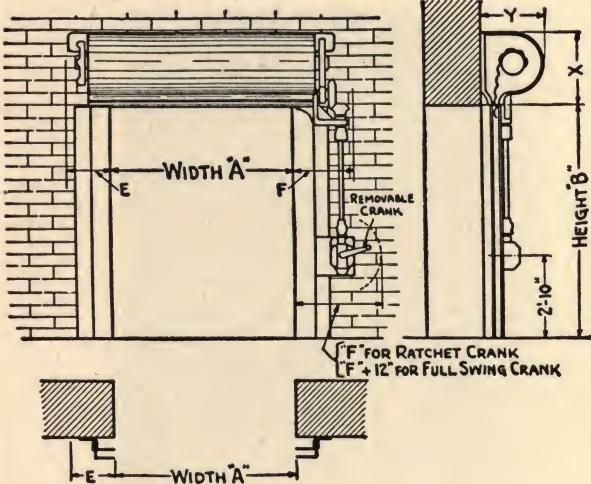
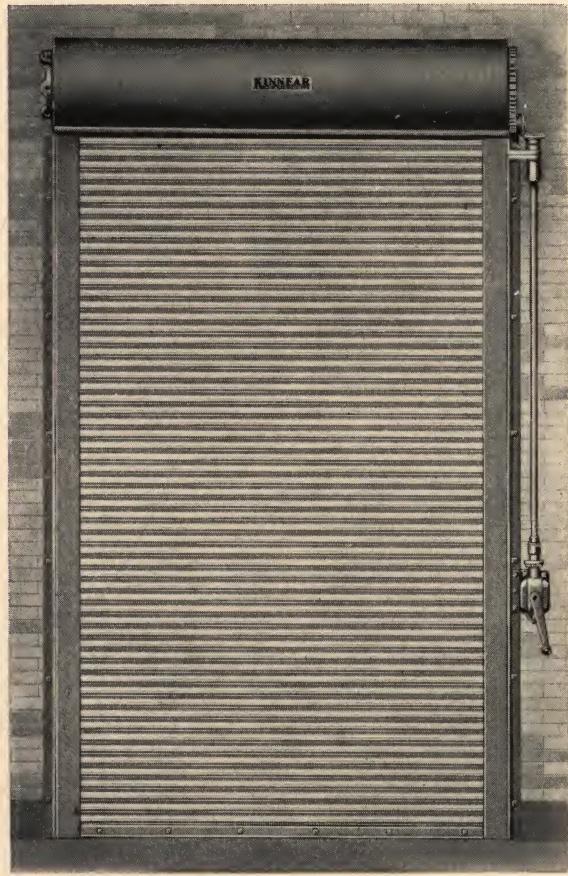
*For FH-61 add 8" to F dimension.

Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.

crank operation (mechanical)

model FC-20

face mounting

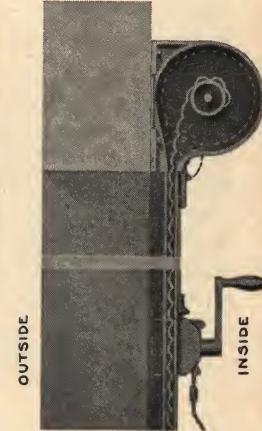
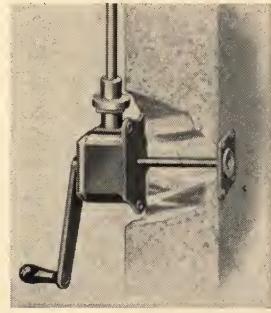


Note: Where door dimensions are larger than the dimensions given within a single bracket in the above tables use the data given in the bracket for the next larger width or height.

Note: Dimensions are for general reference only and not for construction purpose. For special requirements refer to Engineering Dept.

- Operated by hand crank, with shafting and reduction gearing. Locked by crank removal or locking shaft wheel.
- Curtain hot-dip galvanized and given Kinnear Paint-Bond treatment.
- Guide channels and mechanism mounted on face-of-wall.
- Provides clear unobstructed opening—full width and height.

For doorways exceeding the height practical for manual push-up operation and where head room is available; and where frequency of use does not make operating speed essential. Counterbalance and curtain coil, enclosed in a hood, is mounted on the face of wall above lintel. Operated by hand crank, with shafting and reduction gearing. Crank detaches. Can be arranged to operate door from either side (or both sides) of wall. See pages 16 to 20 for further specifications.



Height B*	8'-5"	9'	10'	11'	12'	13'	14'	15"	16"
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
To-9'-0"	12 11 6 11	13 12 6 11	13 12 6 11	14 12 6 11	15 14 6 11	16 14 6 11	16 14 6 11	16 15 6 11	16 15 6 11
To-11'-0"				14 13 6 11					
To-12'-0"	13 12 7 12	13 12 7 12	13 13 7 12	14 13 7 12	15 14 7 12	16 14 7 12	16 14 7 12	16 15 7 12	16 15 7 12
To-13'-0"	14 12 7 12	14 13 7 12	14 14 7 12	15 14 7 12	16 15 7 12	16 15 7 12	16 15 7 12		
To-14'-0"			16 14 6 11	17 16 6 11	17 16 6 11	19 18 6 11	19 18 6 11	19 18 6 11	19 18 6 11
To-15'-0"	16 14 7 12	16 14 7 12	17 16 7 12	17 16 7 12	17 16 7 12				19 18 7 12
To-16'-0"						19 18 7 12	19 18 7 12		21 20 7 12
To-17'-0"	16 15 7 12	17 16 7 12	17 17 7 12	18 17 7 12	18 17 7 12				21 20 7 12
To-18'-0"						19 18 7 13	19 18 7 13		21 20 7 13
To-19'-0"	16 15 7 13	17 16 7 13	17 16 7 13	18 17 7 13	18 17 7 13		21 19 7 13		21 20 7 13
To-20'-0"						21 19 7 13			21 20 10 16
To-22'-0"					19 18 7 13	21 19 7 13		21 20 7 13	24 22 10 16
To-23'-0"	16 15 8 14	17 16 8 14	17 16 8 14	19 18 8 14	21 19 8 14	21 19 8 14	21 20 8 14	21 20 11 16	24 22 11 16

Height B*	17'	18'	19'	20'	21'	22'	23'	24'
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
To-11'-0"	17 16 6 11	19 19 7 12	19 19 7 12	21 20 7 12	21 20 8 12	21 20 8 12	21 20 8 12	22 21 8 12
To-13'-0"	17 16 7 12							
To-14'-0"	21 19 6 11	21 19 7 12	21 20 7 12				24 22 8 12	
To-15'-0"					24 22 8 12	24 22 8 12		26 24 8 12
To-16'-0"	21 20 7 12	21 20 7 12		24 22 8 12		26 24 8 12		26 24 8 12
To-17'-0"			24 22 8 12					
To-18'-0"	21 20 7 13	21 20 7 13	24 22 9 13	24 22 9 13	24 22 9 13	26 24 9 13	26 24 9 13	27 25 9 13
To-19'-0"								
To-20'-0"							26 24 10 16	
To-21'-0"	24 22 10 16	24 22 10 16	24 22 10 16	24 22 10 16	24 22 10 16	26 24 10 16		27 25 10 16
To-22'-0"						27 25 10 16		
To-23'-0"	24 22 11 16	24 22 11 16	24 22 11 16	24 22 11 16	24 22 11 16	26 24 11 16	27 25 11 16	27 25 11 16

*Inclusive.

suggested specifications

■ Kinnear Rolling Service Doors

openings Shall be equipped with Kinnear Steel Rolling Doors.

curtain Shall be of interlocking slats, rolled not drawn, formed in easy curves without sharp bends, from open hearth galvanized steel (for gauge see table below). Slats to be of section sufficiently large to give curtain strength to safely resist a wind load of 20 lb per sq ft. For doors 20 1/2 ft or more wide with 340 sq ft area or more, and in all doors 24 ft wide or more, curtain shall be provided with slat lugs as windlocks to engage bars in guides and to lock the curtain against wind pressure. Each alternate slat shall be fitted with malleable endlocks 3/8 in. thick. Bottom bar to be two angles placed back to back.

galvanizing To be hot process, with a high grade pure zinc coating, 1.25 oz. per sq ft of flat metal, per ASTM Standards. Galvanized surfaces to be provided with a phosphate coating for paint adhesion. Manufacturer to provide a warranty of compliance to this coating specification.

counterbalance Curtain to be coiled on a pipe of size sufficient to carry the door load with a deflection not to exceed .03 in. per ft of opening width, and to be evenly balanced by helical springs contained in pipe, and all springs anchored to the same tension rod and held in position by the same adjusting wheel accessible from the outside.

coil brackets To be of high grade iron designed to house ends of the coils.

hood The coil to be housed with a sheet metal hood No. 24 U.S. gauge.

guides Built of structural steel to form a slot of sufficient depth to retain curtain in guides, against heavy wind pressure, and for doors requiring windlocks, guides must be provided with anchors for windlocks.

gears To be of best grade gray iron, cast teeth machine-moulded from machine-cut patterns, except machine-cut teeth on motor operated doors.

table of slat gauges

Height	Width	U.S. Gauge
0 to 8' 4"	0 to 13' 9" 13' 10" to 20' 4" 20' 5" to 30' 4" 30' 5" up	22 20 18 *
8' 5" to 12' 4"	0 to 12' 9" 12' 10" to 20' 4" 20' 5" to 30' 4" 30' 5" up	22 20 18 *
12' 5" to 28' 4"	0 to 12' 9" 12' 10" to 18' 4" 18' 5" to 30' 4" 30' 5" up	22 20 18 *

*Refer to factory

If aluminum construction is desired, write for suggested specifications.

erection All doors shall be erected by the manufacturer or his authorized representative and shall be guaranteed for a period of one year from the date of completion of erection that any part defective in material or workmanship will be replaced without charge to the customer.

■ Kinnear Electric Operators

operation Doors to be operated by means of Kinnear Electric Motor Operator. The control circuit shall be closed by means of push buttons and automatic limit switches that will break the circuit at termination of travel. Door to be stopped at intermediate points by stop button from where it can then be operated in either direction.

motor To be high starting torque, raising or lowering curtain at approximately .67 ft per second and provided with thermal protection.

reduction gear Of the power unit shall be machine-cut gear completely housed and running in oil bath.

emergency operation A control for automatically engaging a sprocket and chain and releasing the brake, shall be operable from the floor. A device which shall automatically prevent the motor from operating until emergency sprocket is disengaged shall be provided. Emergency operation shall not affect timing of limit switch.

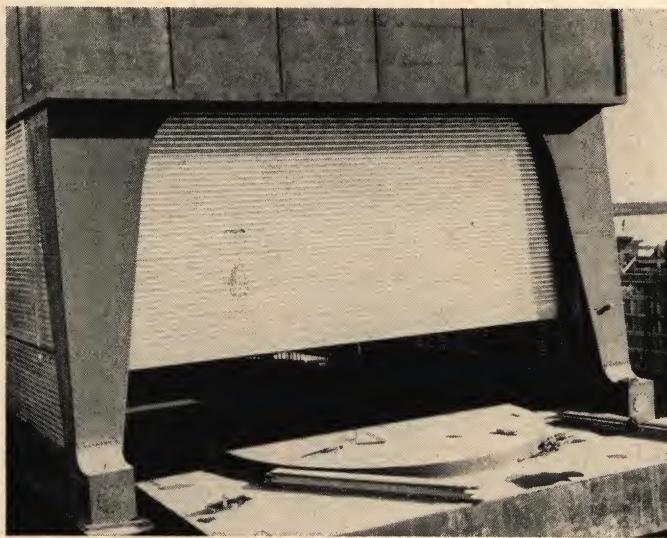
control switches To consist of push button stations marked Open, Close and Stop, in "Nema" type #1 case.

motor starters To be magnetic reversing contactors enclosed in "Nema" type #1 case.

limit switches Door movement to be controlled by a Kinnear limit switch. This limit switch to be easily adjustable to stop the door at terminal positions and shall be enclosed in a cast iron box.

erection All doors shall be erected by the manufacturer or his authorized representative and shall be guaranteed for a period of one year from the date of completion of erection that any part defective in material or workmanship will be replaced without charge to the customer.

General Notes: Complete current characteristics should accompany all requests for quotations. The wire, conduit, service disconnect switch and fuses which the installation of power operation necessitates are not furnished or installed by the Kinnear Manufacturing Company, but are to be provided by others in accordance with wiring diagram supplied by Kinnear.



Reported to be the largest aluminum rolling doors in the world are the two 48'0" x 39'0" Kinnear Aluminum Doors over the ends of this 300-ton Traveling Gantry Crane at the St. Lawrence Seaway. The crane works through hatches in the roof of the Generating Station. The electrically operated doors are opened when the crane is moved into position over an open hatch and then closed to permit working inside, regardless of the weather. Among other special provisions, the doors have electrically heated guides to prevent icing.



Kinnear doors over the portal of the eight-mile Cascade Railroad Tunnel, carrying the main line of The Great Northern Railroad. Heavy engines, pulling up grade through the tunnel became over heated, for lack of cooling air. The special large Kinnear Steel Rol-Top Door shown, barricades the portal and prevents the cool air generated by a ventilating system from backing out due to back pressure. Kinnear designed this door to automatically open as a train approached within a certain distance and to operate under all weather conditions.

(Underwriters' Labeled)

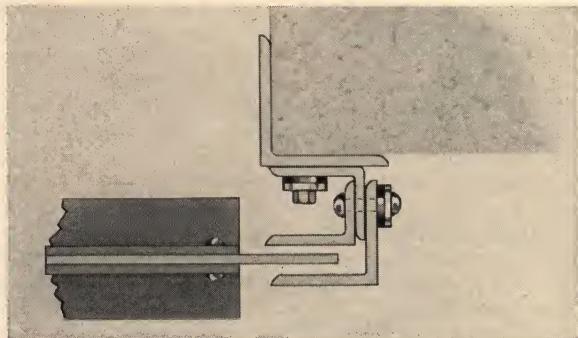
"Akbar" Fire Doors are for fire protection purposes for openings that require Underwriters' Labeled equipment, where insurance rates are a consideration, particularly for plants, offices and other buildings housing people. "Akbar" doors can be built for various types and sizes of openings in new or old buildings.

every advantage of Kinnear service doors

Although provided with mechanism for automatic closure, "Akbar" doors can be arranged for manual, chain hoist, or crankshaft operation for service door use. If Kinnear engineers are given the opportunity during the designing of projects, it is generally possible to provide for concealment of all working parts. The Kinnear Manufacturing Company can furnish the doors inspected and labeled as a fire door, but cannot be responsible for proper fire wall construction or proper framing of the required opening.

special "Akbar" features

1. Automatic Closure, positive drive from open position, by auxiliary motor spring (independent of counterbalance spring). Improved barrel lock prevents further rotation of barrel, and suspends curtain in proper closed position.
2. Safety Governor controls downward travel, minimizing accident possibilities. Also prevents impact on sills, rebound, and jamming of slats—an Underwriters' requirement for fire doors.
3. Door can be readily opened after automatic closure since tension of counterbalance spring is not released in automatic closure. Allows emergency exit service, after which door will again reclose.
4. Automatic mechanism can be quickly reset and door raised to open position after automatic closure, thus preparing door for either automatic or service operation. Because of easy reset, "Akbar" doors are readily tested.
5. Drop-hood, or baffle, where required operates automatically in case of fire to effectively prevent passage of flames or smoke.



Above: Showing two of the AKBAR provisions for expansion. Also shows the recommended way of mounting curtain guides on a continuous angle. (Supplied by others when preparing opening.)



Showing an Akbar Fire Door that has gone through a fire, having confined a devastating fire to a room on the other side of the fire wall. Note that fire extinguisher is still in place on the wall.

NOTE . . .

3-HOUR CLASS A LABEL of the Underwriters' Laboratories, Inc. is carried on AKBAR Doors for all installations* in INTERIOR fire walls, corridor and room partitions, and vertical shaft openings.

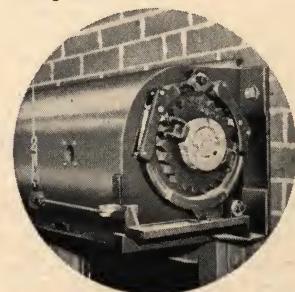
1½-HOUR CLASS D LABEL of the Underwriters' Laboratories, Inc. is carried on AKBAR Doors for all installations* in EXTERIOR wall openings.

**"Akbar Fire Doors" for openings up to 120 square feet, but not exceeding 12 feet in width or height, bear the label of the Underwriters' Laboratories, Inc. Doors for larger openings will be furnished, and when not exceeding 24 feet in either width or height, will be provided with an Underwriters' Laboratories certificate of inspection indicating that the construction of the doors conforms to the specifications of the Laboratories.

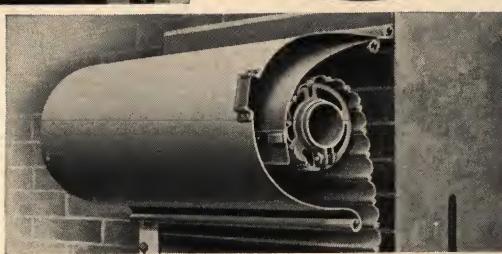
Below: Mechanism of chain hoist AKBAR Fire Door.



Below: Manual AKBAR operating mechanism.

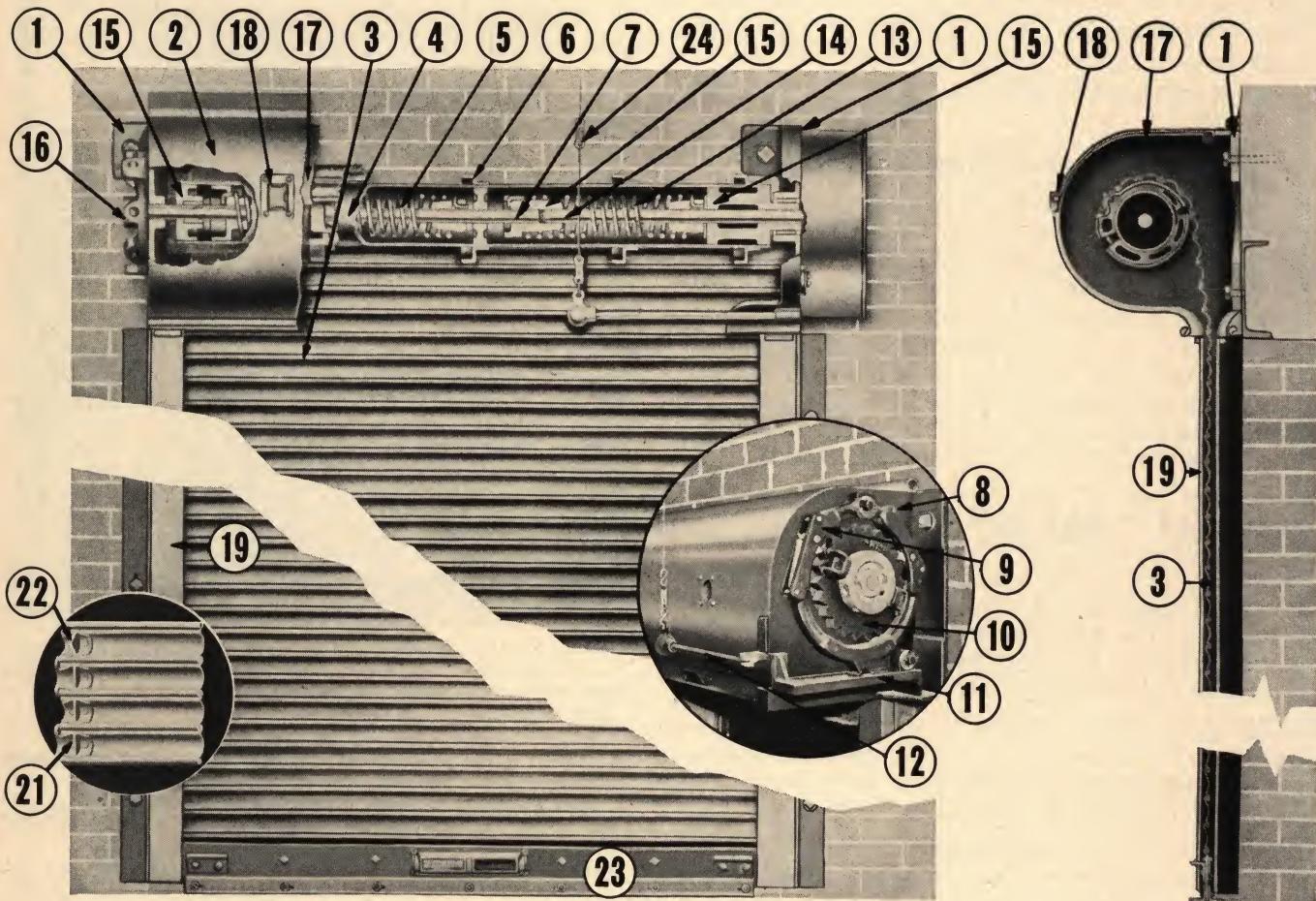


Right:
Drop-hood
over main
head on
curtain
coil.



construction features

■ "Akbar" steel rolling fire doors



Kinnear "Akbar" Fire Doors embody numerous construction features—such as the exclusive Safety Governor—which make them a foremost fire protective device.

1 brackets High test gray iron, providing a high safety factor. Integrally cast bracket mouth and stops give smooth operation and eliminate excessive drag of curtain on stops. (One on left of illustration is designated as A. W. bracket in case illustration is referred to when ordering parts.)

2 hoods Neatly formed from hot galvanized sheet metal of No. 24 U.S. gauge, fitted to give tight enclosure to coil. Reinforcing beads or flanges prevent deflection.

3 curtain Composed of interlocking slats of hot dipped galvanized steel and not less than No. 20 U.S. gauge on Class A, B and C doors, and No. 22 U.S. gauge on Class D doors. Slats are designed with a high crown to provide rigidity. Hinging centers are arranged to give free action to the curtain and to nest properly when coiled. See pages 4 and 5 for details of Kinnear slats.

4 spring barrel Encases counterbalance mechanism. Made from heavy steel tubing of thickness and diameter particularly designed to carry the curtain load and minimize deflection. Main bearing in supporting barrel is a roller bearing.

5 counterbalance Composed of helical springs wound from especially heat treated steel and tempered with oil. Individually tailored for each job and all springs anchored to same tension rod,

held in position by same adjusting wheel accessibly located on the outside of the bracket.

6 rings Rings of malleable iron of special involute shape and split type are designed to coil the curtain with a uniformly increasing diameter. These can be installed or removed on the door without dismounting spring barrel or brackets. Initial diameter is sufficient to insure uniform and constant counterbalance for all points of the door travel.

7 shafting or tension rod Of cold rolled polished steel to minimize friction in all bearings. Of ample size for the torsional load of counterbalance.

8 and 9 auxiliary retaining wheels Wheels are attached to the tension rod (14) of the auxiliary spring (15). This spring, therefore, can function only when the wheels are free to turn after being released for automatic closure.

10 safety governor An exclusive feature of all "AKBAR" Doors and a feature required by the Underwriters' Laboratory. Governor retains the wheels (8 and 9) and is itself held in place by the release levers (11 and 12). When these levers release the governor, wheels can revolve only at a safe speed. Therefore, the force of the auxiliary spring (13) is controlled, minimizing danger of personal injury and door closing with impact on the floor.

11 and 12 release levers The automatic closing mechanism is retained by these levers. All contact points are either

covered with or made from non-corrodible metals to eliminate any possible freezing together. The lever (12) is held up by fusible links (25) which release at 160° F.

13 and 14 auxiliary spring and tension rod Spring is anchored to the tension rod, which is in turn held in place by the auxiliary wheels (8 and 9). It always carries stored-up energy, sufficient for completely and positively closing the door from any position in the opening when automatically released. Independent of the counterbalance spring, the counterbalance is accordingly undisturbed when door is automatically closed.

15 barrel plugs Heavy cast iron plugs machined where necessary to fit into barrel ends. Specially designed to hold, and eliminate the usual excessive strains at the spring ends.

16 adjustment wheel This is connected to the tension rod (7) carrying the counterbalance spring or springs and attached to the bracket opposite the one carrying the automatic mechanism. The tension of the counterbalance spring is controlled by this wheel, permitting simultaneous and uniform adjustment of all door's operating balance springs.

17 drop-hood or baffle A metal shield of the same gauge as the hood is attached to the main hood by a continuous beaded joint, permitting the shield to hinge over the curtain coil. This shield forms the drop-hood and is held up out of the way by a fusible link attachment (18). In case of fire, the link melts and the drop-hood drops on the coil and becomes a baffle against passage of hot gases around the bracket.

18 hood fusible links These links hold the drop-hood or baffle out of the way during normal operation, and are distributed to provide necessary alignment. Fusible at 160° F.

19 guides Of structural steel of at least 3/16" thickness. Slotted holes are provided for the rivets holding angles or plates together and for the bolts securing guide to the wall. Heat-destructible washers underneath the heads of the rivets and bolts provide means for expansion and minimizes danger of buckling in case of fire. Depth of grooves is increased to accommodate the increase in width of openings.

20 clearance Sufficient clearance is provided between ends of curtain and back of guides and between all other operating parts, to accommodate expansion for temperatures up to and including 1800° F.

21 endlocks Placed on every slat and made of malleable iron shaped to close the concave ends of slats and to prevent the passage of hot gases and smoke around the edge of curtain. Endlocks retain slats in place, maintain alignment and protect the slats against abrasion in guides.

22 curtain locks The weight of the curtain is balanced by springs, but when the curtain is down in the closed position, it is also supported by a curtain lock which engages in the bracket throat, in order to eliminate danger of the curtain collapsing in case of the temper of the springs is lost from the excessive heat in case of fire.

23 bottom bar Made of two angles and a flat plate, designed to reinforce the bottom of the curtain. Provided with handles for raising the door and with stops for retaining it, when open, in an exact position against the coil bracket, free for a direct start in closing automatically in case of fire. Slide bolt locks, as used on service doors, can be furnished on these bottom bars when specified.

24 automatic fuse unit Fusible link holds the door in readiness in case of fire and disintegrates when exposed to a temperature of 160° F., releasing door closing mechanism.

specifications

■ "Akbar" Steel Rolling Fire Doors (Underwriters' labeled)

openings Shall be equipped with Kinnear Steel Rolling Automatic Fire Doors of the "Akbar" Construction.

label All doors, when opening size permits, to bear the required label of the Underwriters' Laboratories.

operation All doors to be automatic closing in the event of fire. Doors not exceeding 8 ft. high or 80 sq. ft. in area can be operated by means of handles on the bottom bar; but larger sizes should be operated through reduction gear by hand chain (or crank).

automatic closing device To be thermally controlled by means of a fusible link. The door shall not depend on gravity for closing but shall be forced to a closed position by an auxiliary spring in spring barrel which is inoperative during normal operation and released by thermal control without affecting the permanent adjustment of the counterbalance spring.

counterbalance Curtain to be balanced by helical springs within spring barrel. All counterbalance springs shall be anchored to same tension rod, held in fixed position by the same adjusting wheel accessibly located on the outside of the bracket. Counterbalance to be permanently maintained, and doors shall operate normally and be readily operable after automatic closure.

safety device To be an automatic governor of escapement type inoperative during normal operation but which shall so control the speed of the curtain during automatic operations as to avoid injury to persons accidentally under the door.

curtain To be of Kinnear interlocking slats rolled from steel with no sharp bends and hot galvanized. The ends of the slats to be fitted with endlocks 3/8 in. thick. Gauge of metal and type of endlocks as established by Underwriters' Laboratories.

brackets To be high grade cast iron with roller or ball bearings in bracket for revolving end of barrel.

guides To be of structural steel 3/16 in. thick arranged for expansion at all rivet and bolt connections.

hoods The coils to be enclosed with galvanized sheet metal housing of No. 24 U. S. gauge. For doors on interior wall, hoods to be furnished with a drop-hood thermally controlled, closing against the coil when automatically released.

paint All parts of the door except mechanism to be given one shop coat; mechanism dipped in flat black.

erection All doors shall be erected by the manufacturer or his authorized representative and shall be guaranteed for a period of one year from the date of completion of erection, that any part defective in material or workmanship will be replaced without charge.

"Superior" Fire Shutters (Underwriters' labeled)

"Superior" Fire Shutters, designed especially for window openings, have substantially the same design as "Akbar" Fire Doors, except that they are not constructed for service raising and closing. They incorporate the following features:

- 1 Positive automatic closure.
- 2 Safety governor to prevent excessive speed and to limit closing impact.
- 3 Counterbalance spring which is not affected by door testing or automatic closure and requires no adjustment when once set.
- 4 Removable crank operates gearless rewind mechanism for raising and resetting curtain.

In addition, shutters can be tested or closed at any time by releasing chain from keeper located on inside of wall.

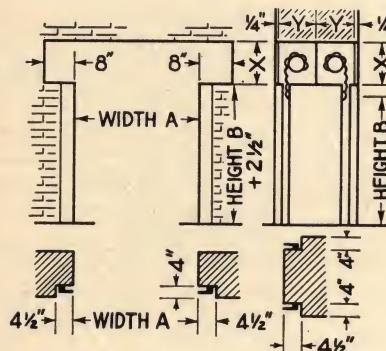
"Akbar" steel rolling fire doors — (Underwriters' Labeled*)

superior fire shutters

manual operation

model BMA

under lintel mounting



Note:

This model is for Class A openings. Similar models available for other class openings. Consult your local inspection bureau for opening class required.

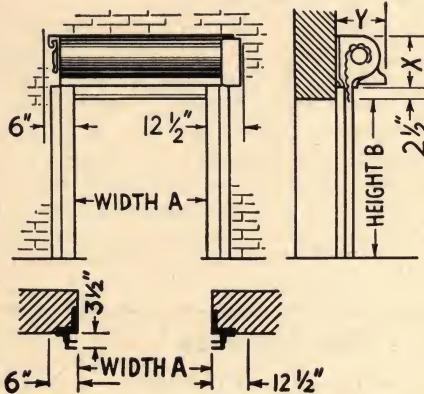
Height B*	6'	7'	8'	9'	10'	11'	12'
Width A*	X Y	X Y	X Y	X Y	X Y	X Y	X Y
3'-4'			17 13		18 15		
5'	17 13		17 14				
6'	17 13		17 14				
7'	17 14				20 17	20 17	
8'-9'	17 14	19 16	19 16				
10'	19 16						

inches

manual operation

model FMA

face mounting



Note:

This model is for Class A openings. Similar models available for other class openings. Consult your local inspection bureau for opening class required.

Height B*	6'	7'	8'	9'	10'	11'	12'
Width A*	X Y	X Y	X Y	X Y	X Y	X Y	X Y
3'			15 16		18 18	18 18	
4'	15 16		16 16	17 18	17 18		
5'	15 16		16 16				
6'	15 16		16 16				
7'	16 16		18 18	19 19	19 19		
8'-9'	16 16	18 18	18 18	19 19	19 19		
10'	18 18						

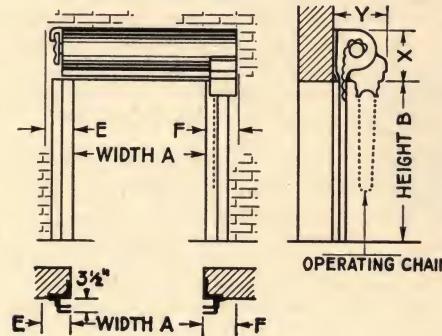
inches

Note: Manual operation not recommended for sizes exceeding 80 sq ft in area.
Note: Dimensions in above tables also apply to fire doors for Class "B," "C" and "D" openings.

chain operation

model FHA

face mounting



Note:

This model is for Class A openings. Similar models available for other class openings. Consult your local inspection bureau for opening class required.

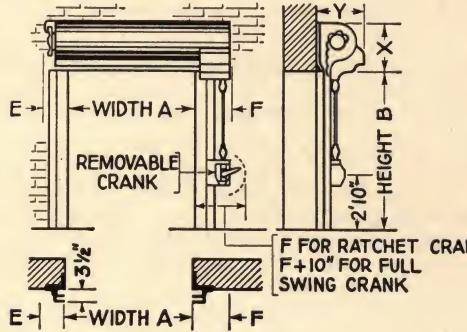
Height B*	6', 7', 8'	9'	10'	11'	12'
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
3'-4'	17 20 9 9	17 20 9 9	17 20 9 9	17 20 9 9	17 20 9 9
5'					
6'					
7'					
8'			17 20 9 10	17 20 9 10	17 20 9 10
9'		17 20 9 10	17 20 9 10	17 20 9 10	
10'			18 21 9 11	18 21 9 11	18 21 7 11
11'			18 21 7 11		
12'	17 20 10 10	17 20 7 10	18 21 7 12	18 21 7 12	18 21 7 12

inches

crank operation

model FCA

face mounting



Note:

This model is for Class A openings. Similar models available for other class openings. Consult your local inspection bureau for opening class required.

Height B*	6', 7', 8'	9'	10'	11'	12'
Width A*	X Y E F	X Y E F	X Y E F	X Y E F	X Y E F
3'					
4'					
5'					
6'					
7'					
8'-9'					
10'					
11'					
12'	17 17 10 13	17 17 7 13	17 17 7 13	18 18 7 13	18 18 7 13

inches

Note: All dimensions given in this catalog are for general reference only and not for construction purposes.
* Inclusive.

spring counterbalanced

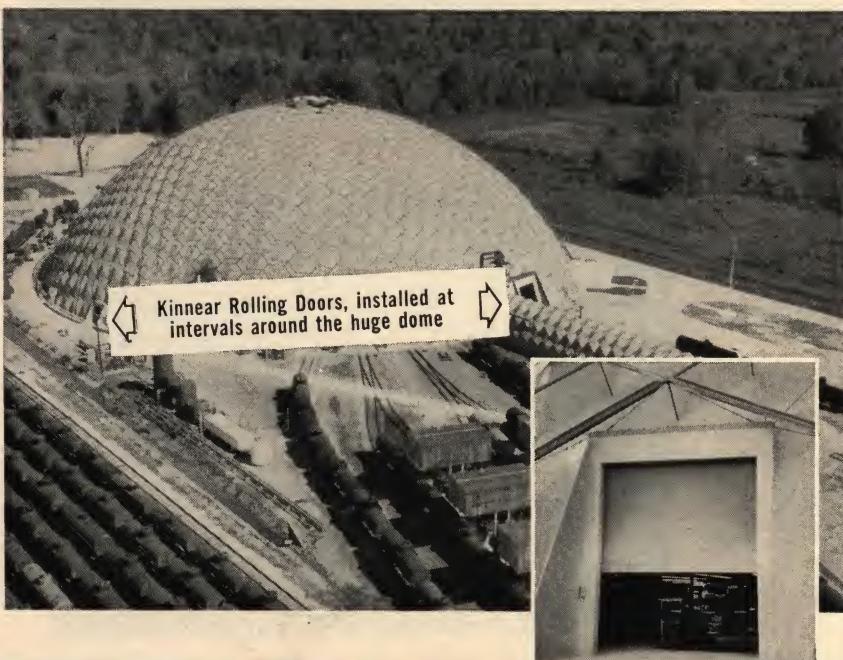
This is one of the most practical bifolding doors for average size openings on the market. It requires less clearance at both head and sides of opening than do most other types. Permitting the use of sash, approximately two-thirds of the upper section of the door can be used for the admittance of light. Constructed of either wood or steel, the Bi-fold No. 5 provides heavy duty service. Also, its simple and sturdy mechanism makes maintenance a negligible factor and renders quick and easy operation. This door is of a jack-knife folding type, constructed of two leaves or sections, hinged at the center and attached to the wall with

hinges at the top corners of the top leaf. The lower corners of the bottom section are carried on ball-bearing rollers which travel in guides attached to the wall. Cables are attached to the pins at each of the rollers and are wound on spiral drums. The door is operated up and down by driving the drums with hand chain, through reduction gear, winding or unwinding the cable as required.

The doors are counterbalanced by torsion springs on a steel shaft in the same manner as for steel rolling doors.

In order to prevent the drums from being revolved in the wrong direction when the door is down, and thus unwind excess cable, the torsion shaft carrying the spring is provided with special lock set which does not permit the shaft to be revolved only so far as to unwind a required amount of cable. This is a safety feature which insures constant tension on the cable, holding it to the groove and the sheave and eliminating the possibility of slack.

An adjustable cable connection permits the bottom of the door to be leveled and to insure an even pull on both cables.



Kinnear Rolling Doors, installed at intervals around the huge dome

Here, as in all types of buildings, Kinnear Rolling Doors provide up-to-the-minute door efficiency.

With no internal supports of any kind, yet big enough to enclose a football field, this giant geodesic dome houses a railroad car repair shop of the Union Tank Car Co., in Baton Rouge, Louisiana.

Kinnear Rolling Doors open straight upward and clear the entire doorway, coiling compactly above the opening. Surrounding floor, wall and overhead space, inside and outside the building is always fully usable whether the doors are opened, closed, or in action. This promotes full use of hoist, crane, conveyor, and lift-truck equipment.

Every Kinnear Door is Registered. Full details of all parts are kept permanently in Kinnear's fireproof vaults. Parts are always replaceable. Your Kinnear doors will never be "orphans".

For maximum durability Kinnear's special hot-dip galvanizing coats the entire curtain with a full 1.25 oz. of pure zinc per square foot of metal (ASTM standards).

Kinnear steel rolling grilles

Kinnear Steel Rolling Grilles assure effective protection against burglars, marauders, and trespassers of every type, and are also widely used for closing off corridors and stairways in public buildings, when it is desirable to keep unauthorized persons from entering restricted areas.

Operating on the same principle as Kinnear Steel Rolling Service Doors (fully described on pages 6 through 19), Kinnear Steel Rolling Grilles are permanently installed. They are remarkably strong when closed and locked, and yet, when they are not needed, they can be easily raised to disappear from sight completely out of the way.

Because of the type of operation and protection provided, without sacrificing light, vision or ventilation, Kinnear Steel Rolling Grilles have wide application for interior and exterior use on concessions, store entrances and windows, vaults, stairways, corridors, courtyards, loading platforms and other openings in monumental, industrial and commercial buildings.

construction features

Attractively designed, the Kinnear Steel Rolling Grille will harmonize with any style of architecture. It is ruggedly built throughout, of the best materials practicable. Galvanized steel is standard, but grille and guides can be built of aluminum or bronze. Every part is designed to give maximum wear. It is a protective device that will provide long years of service, with a low maintenance cost.

The grille proper is extremely strong and artistically designed of 5/16 in. round steel bars spaced close enough to prevent the admittance of either a man's hand or large missiles. For maximum durability the round steel bars and pressed steel links are galvanized by the hot dip method, giving a pure zinc coating of not less than .65 oz. per sq. ft. of surface, in accordance with ASTM Standards.

It is equipped with a lock that engages in the guides for use when the grille is closed. The lock is of a unique cylinder type (see illustration at right), arranged for locking from both sides.

The grille coils on a heavy pipe or barrel above the lintel, and is locked in and travels in heavy steel guides mounted on the side of the opening. Helical springs enclosed in the pipe or barrel provide accurate counterbalance. A neat hood of suitable metal is furnished to house the barrel and the coil.



Note sturdy construction of this Kinnear Steel Rolling Grille. Also the revolving type cylinder lock that permits locking from both sides. (On manually push-up type doors only).





■ suggested specifications (short form)

Grille to be of the Kinnear Rolling Type, coiling above the lintel in 24 U. S. Gauge galvanized steel hood, on heavy steel barrel journaled in cast iron brackets and traveling in guides mounted at the sides of the opening. Barrel to encase steel, helical oil tempered counterbalance spring with necessary factor of safety. Grille to be composed of horizontal 5/16" round steel galvanized bars, spaced not to exceed 1 1/8" apart, joined by oval shaped pressed galvanized steel links at intervals at approximately 8 1/4" (omit "galvanized" on Grille sizes exceeding 29'6" in width). Bars and links to be galvanized by the hot dip process, with not less than .65 oz. of zinc per sq. ft. of surface in accordance with ASTM Standards. End links to be engaged in guides fabricated of heavy structural steel members, in manner to prevent Grille from leaving guides under excessive pressure.

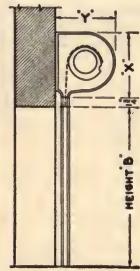
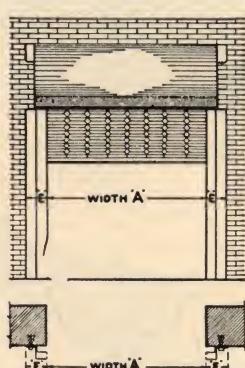


■ methods of operation

Methods of operation for the Rolling Grilles are also similar to those provided for Kinnear Steel Rolling Service Doors. They can be arranged for manual, mechanical (by chain hoist or crankshaft), or electrical operation. For further details, see pages 6 to 20.

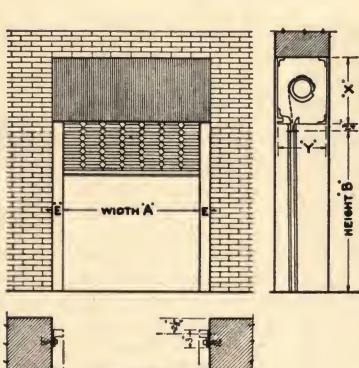
■ installation types and clearances

face of wall



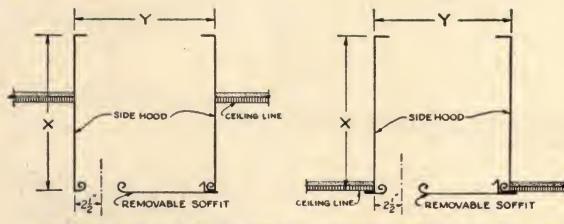
Hand lift type not recommended for sizes exceeding 120 square feet in area. When in need of larger sizes write Kinnear for clearances and details.

between jambs



HEIGHT "B"	To 5'-0"			To 7'-0"			To 9'-0"			To 11'-0"		
CODE	X	Y	E	X	Y	E	X	Y	E	X	Y	E
FACE OF WALL	15"	13 1/2"	4"	16"	14 1/2"	4"	18"	16 1/4"	4"	19"	17 3/4"	4"
BETWEEN JAMBS	15"	13 1/2"	2 5/16"	17"	15 1/2"	2 5/16"	19"	17 1/2"	2 5/16"	19"	17 1/2"	2 5/16"

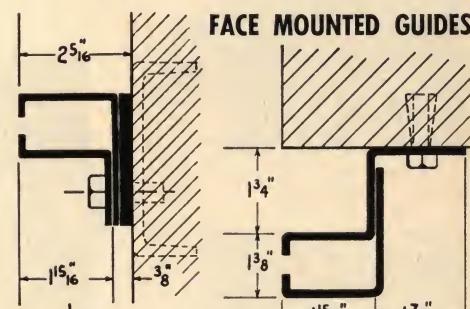
typical
rolling
grill
hoods



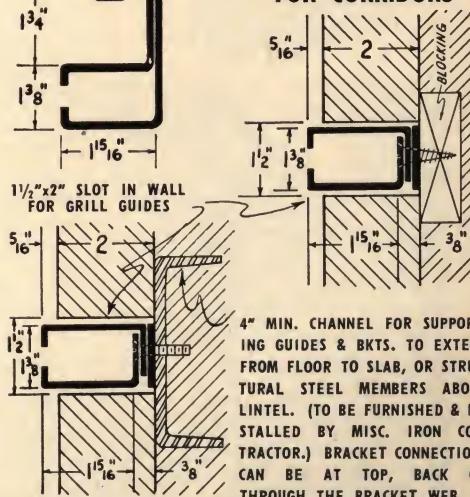
*Inclusive.

Note: Dimensions are for general reference only, and not for construction purposes.

FACE MOUNTED GUIDES



RECESSED GUIDES, FOR CORRIDORS



Kinnear Rolling Counter Shutter

As the result of functional building design, with its emphasis on space economy, there has been a rapid increased usage of Kinnear Rolling Shutters as a method of closure for service counters, alcoves or other locations requiring a durable, space-saving, easy operating closure. Operating like a window blind, it provides the utmost in convenience.

To more appropriately meet this need (when width of opening does not exceed 20 feet wide), Kinnear has adapted the time-tested basic design of their Metal Rolling Doors (described on pages 4 to 20), to what has been designated as a counter shutter, employing a curtain composed of a flat "Midget" interlocking slat of steel, aluminum or other metals. As herein illustrated, these slats are extruded when made of aluminum and roll formed when made of steel or other metals.

One of the especially valuable, distinctive features of this counter shutter is a telescoping shaft which permits the installation or removal

of the spring barrel without dismantling the brackets. Also, the bottom bar of the curtain is fitted with a vinyl plastic strip to provide a seal and to prevent abrasions on the counter. Each end of bottom bar is also fitted with a concealed slide bolt, operable by single handle, which engages the guides for locking. Where extra quiet operation is desired, guides may be equipped with a heavy nap stripping, which contacts the curtain and serves as a cushion in the curtain travel as well as a dust seal.

These counter shutters are available for a maximum opening width of 20'0" and maximum height of 5'6". For widths up to 14'0" operation is manual pushup by means of a handle in the bottom bar. For widths over 14'0" operation is by hand crank operating through shaft and reduction gearing.

Details on next page show how the Kinnear Counter Shutter may be installed on the face-of-wall or in reveals in the wall. Consult Kinnear Engineers on your specific requirements.

Rolled Slat No. 17

Illustrated at left is a full size section of the Kinnear Slat No. 17, roll formed of either 22 or 24 U.S. Gauge Steel. Note its clean flat appearance. For other advantages of its design see page 4.



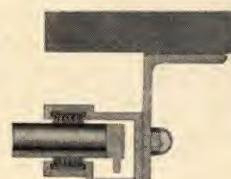
Rolled Slat No. 17
(Full Size)



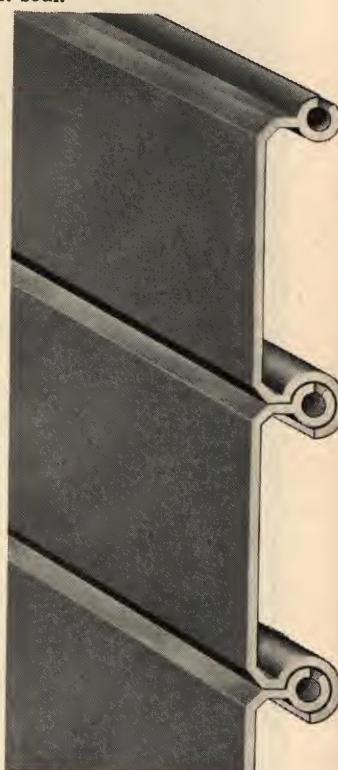
Left: Steel slat curtain has double-contact vinyl plastic strip fitted to bottom bar, prevents abrasion to counter top.

Left: Compact gearing unit, operable with hand crank (for widths over 14'0") with removable operating arm keeps working area free, prevents use by unauthorized persons.

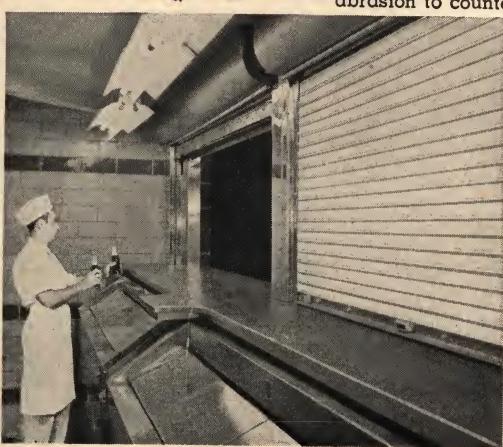
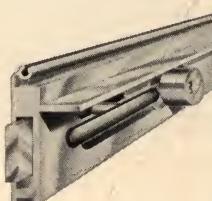
Extreme Right: Extruded aluminum slat curtain is fitted with an extruded bottom bar with vinyl insert and concealed slide bolt which engages the guide for locking.

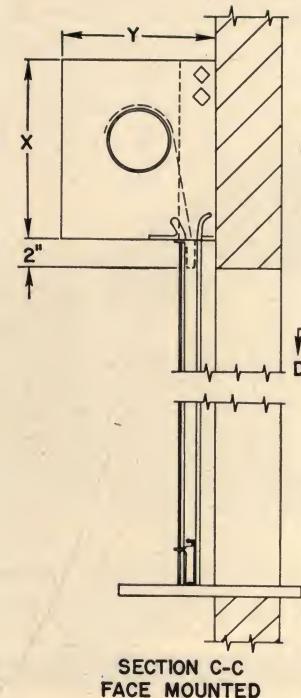
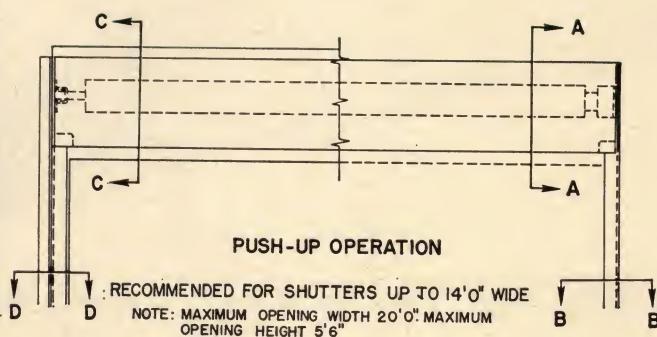


Above: On the extruded aluminum shutter, the aluminum extruded guide is designed for heavy nap inserts to give quiet operation and dust tightness. Also engages safety end-locks to prevent curtain from being sprung out of guide.

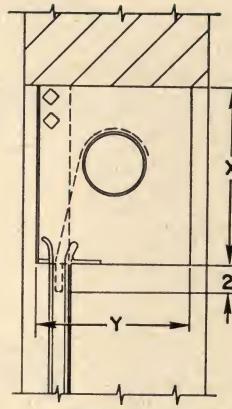
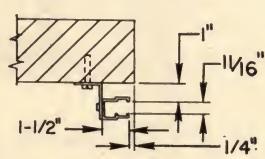


Extruded Slat No. 17E
(Full Size)

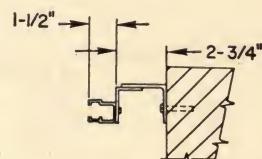


SECTION C-C
FACE MOUNTED

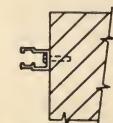
PUSH-UP OPERATION
RECOMMENDED FOR SHUTTERS UP TO 14'0" WIDE
NOTE: MAXIMUM OPENING WIDTH 20'0" MAXIMUM
OPENING HEIGHT 5'6"

SECTION A-A
BETWEEN JAMBS -
UNDER LINTEL

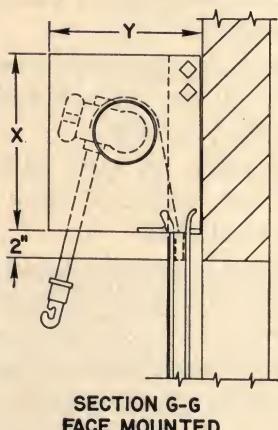
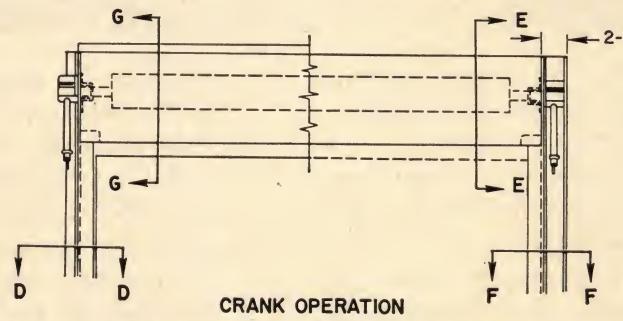
SECTION D-D



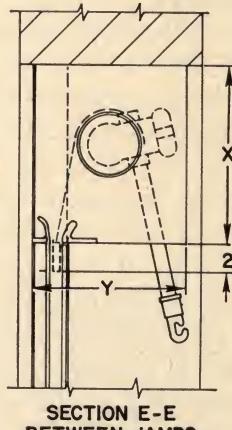
SECTION F-F



SECTION B-B

SECTION G-G
FACE MOUNTED

CRANK OPERATION
RECOMMENDED FOR SHUTTERS OVER 14'0" WIDE

SECTION E-E
BETWEEN JAMBS -
UNDER LINTEL

MAX. WIDTH 20'-0"	SHUTTER HEIGHT	X	Y
		8"	8"
	4'-6" TO 5'-6"	8 1/2"	9 3/4"

UP TO 14'-0" WIDE PUSH-UP OPERATION
OVER 14'-0" TO 20'-0" CRANK OPERATION

suggested specifications

Rolling Counter Shutters as shown, to be as manufactured by The Kinnear Manufacturing Company of Columbus, Ohio.

curtain Curtain shall be composed of interlocking flat faced midget type slats. Slats to be extruded aluminum 6063 alloy not less than .050" thick. Alternate slats to be fitted with endlocks to hold curtain in alignment. Safety endlocks shall be installed for extra protection on all curtains over 8'0" wide. Bottom of curtain to be finished with an extruded bottom bar fitted with a continuous vinyl astragal to seal against, and protect, counter top.

barrel Curtain to be coiled around a steel pipe fitted when required with involute shaped rings for ease of operation. Barrel to be supported by steel plate brackets and so designed that it can be removed without disturbing supporting brackets. Helical, oil tempered springs shall be installed inside the steel pipe, which shall rotate on grease sealed ball bearings. Spring tension shall be adjusted in field by means of an adjusting wheel concealed inside the aluminum coil housing.

guides To be formed from extruded aluminum shapes of 6063 alloy and shall extend above lintel so as to furnish support for

brackets. Guides to contain retaining groove to engage safety endlocks and prevent curtain leaving guides. Continuous strips of heavy nap stripping shall be locked into guides to give rattle-free operation and to provide dust-seal around curtain.

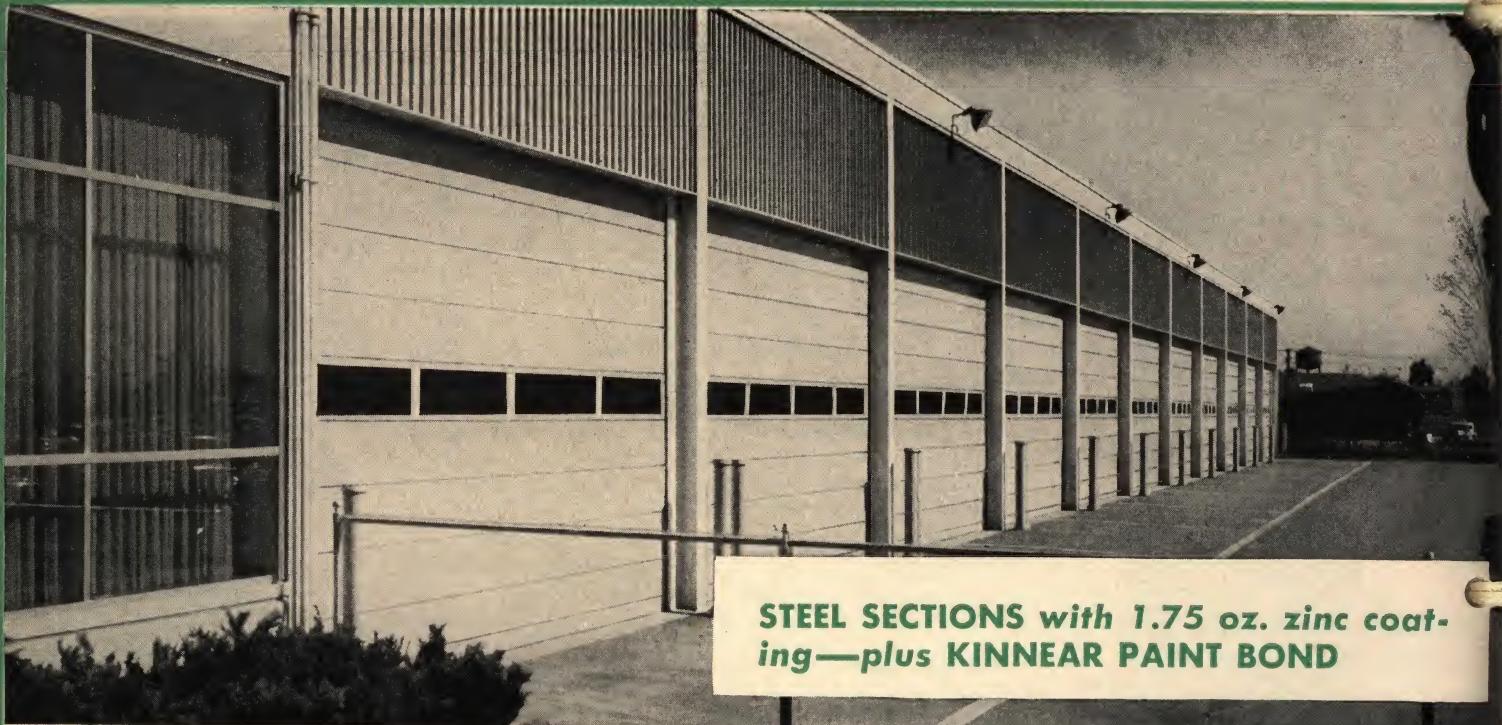
operation Shutters under 14'0" wide shall be operated by means of handles mounted on bottom bar. Shutters 14'0" and wider shall be operated by removable hand crank with crank box mounted on end of spring barrel.

locking device Curtain shall be locked by concealed slide bolts at each end of bottom bar which shall engage slots in each guide. Slide bolts to be so connected as to operate simultaneously by means of single handle. (Cylinder lock can be provided at extra cost which will prevent operation of both slide bolts.)

finish Curtain, bottom bar, guides and hood shall be anodized thirty minutes for a satin finish after all fabrication is completed. All other parts to be given a shop coat of aluminum paint.

NOTE: Kinnear Rolling Counter Shutters can also be furnished with formed steel slats, steel angle guides and steel hood and brackets. Clearance dimensions are similar to the aluminum shutter detailed above.

steel RōL-TOP doors



STEEL SECTIONS with 1.75 oz. zinc coating—plus KINNEAR PAINT BOND

- Attractive, straight-line outward appearance that harmonizes with buildings of either modern or traditional design.
- Durability combined with space-economy and fast operation of upward action plus provision for glass openings.
- All-steel construction—stronger, more impenetrable to vandalism and marauding.
- 16 gauge steel given a 1.75 oz. per sq. ft. coating of pure zinc by the hot galvanizing process. (As per ASTM Standards—recognized for preserving the base metal.)
- Kinnear Paint Bond Treatment after galvanizing—a finely crystalline phosphate

coating by special process to insure immediate paint adhesion.

- Single-shaft, torsion spring counterbalance insures uniform pull on both sides of door and extra operating safety.
- Built to various sizes to suit old or new buildings—with or without any desired number of sash sections.
- Arranged for either manual (hand push up or chain and reduction gearing) or motor operation.
- Available with modifications for specialized uses or building conditions.

Kinnear

steel RōL-TOP door

SCOPE:

All steel overhead type doors shown on plans shall be Kinnear RōL-TOP or equal.

DOORS:

This door shall be a standard product of a manufacturer regularly engaged in the production of steel overhead type doors.

DOOR SECTIONS:

Sections shall be approximately 18" wide, rolled from 16 gauge galvanized and bonderized steel, the edges of the steel sections to be rolled to form a continuous interlocking hinge. Galvanized coating shall be 1.75 oz. per square foot of flat metal per ASTM standards. Glazed sections to be provided as indicated on plans, type of glass as required.

Doors shall be designed to withstand a wind pressure of 20 pounds per square foot of door area.

TRACKS:

All tracks to be formed of galvanized steel and mounted on continuous angles designed for bolting to building jambs. Doors of 110 square feet or under may use 2"

specifications

track; doors over 110 square feet shall use 3" track.

COUNTERBALANCE:

All doors shall be counterbalanced by means of oil tempered torsional springs mounted on a continuous steel shaft. Springs to be adjustable for proper operation.

HARDWARE:

Ball bearing rollers to be carried on heavy duty malleable iron supports.

Push-up doors to have cremone type cylinder lock.

Bottom of door to be provided with rubber weather seal, top and sides of door to be provided with adjustable metal weather seal.

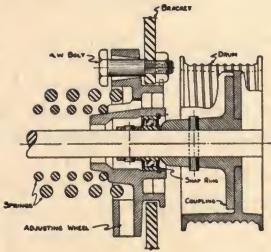
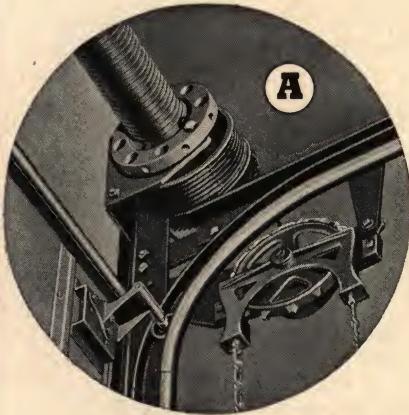
OPERATION:

Doors to be push-up, chain hoist or motor operated as the size and/or type of operator requires.

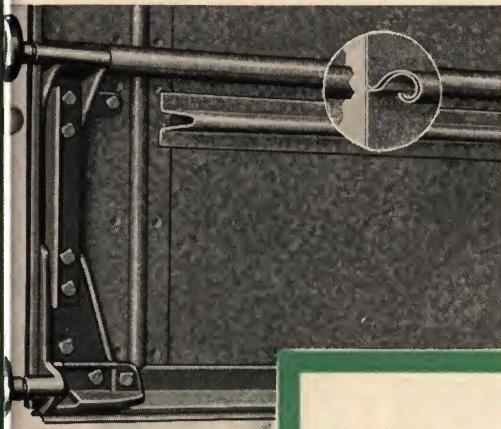
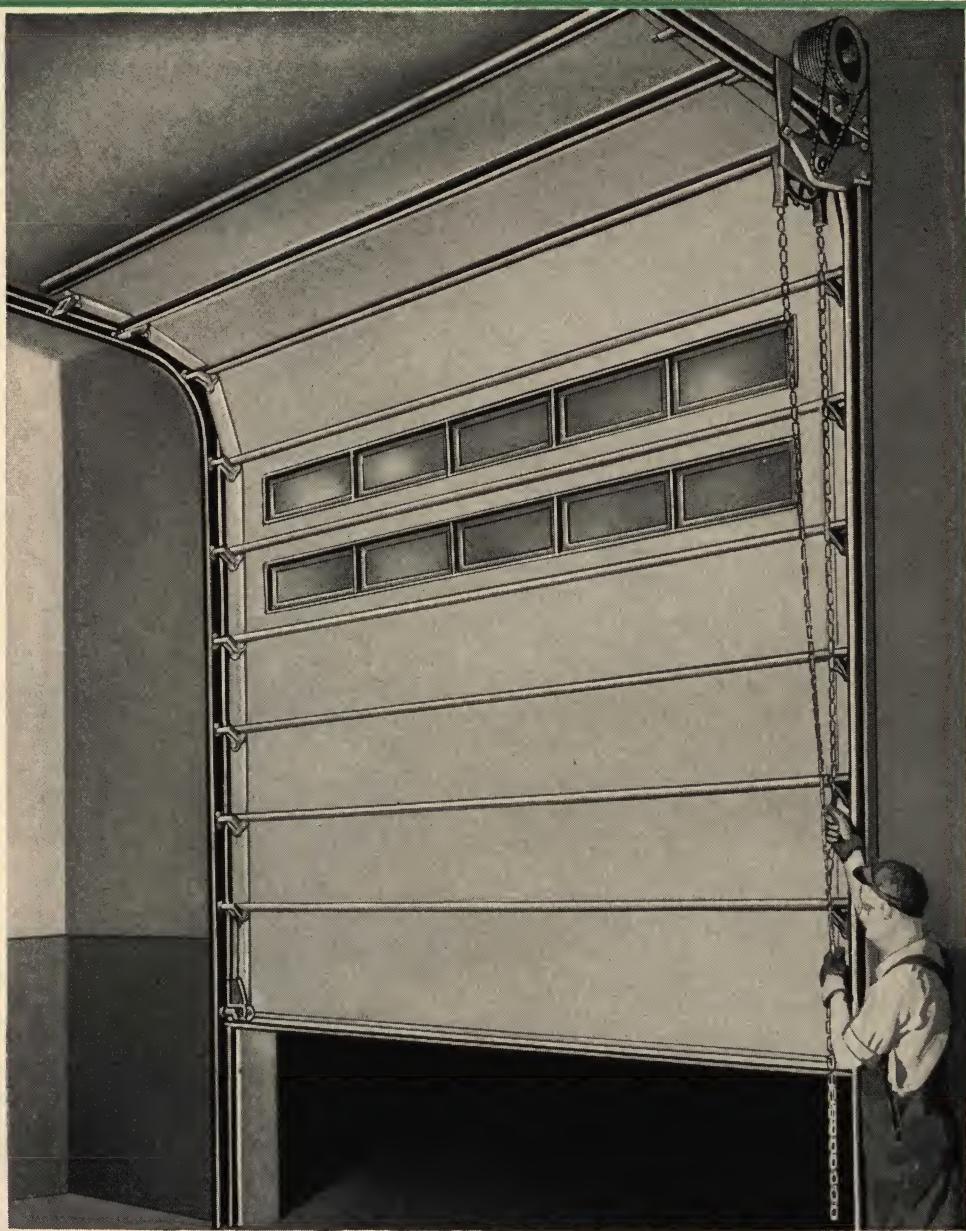
WORK WILL NOT INCLUDE:

- Electrical wiring, conduit or fuses
- Structural steel sills and jambs
- Glass and glazing
- Painting

The enlarged illustration shows a chain hoist operated door—shows what Kinnear experience has found most satisfactory . . . simple, durable construction that insures easy operation and trouble-free service. Recommended on all doors over 10 ft. high or 100 sq. ft. in area.



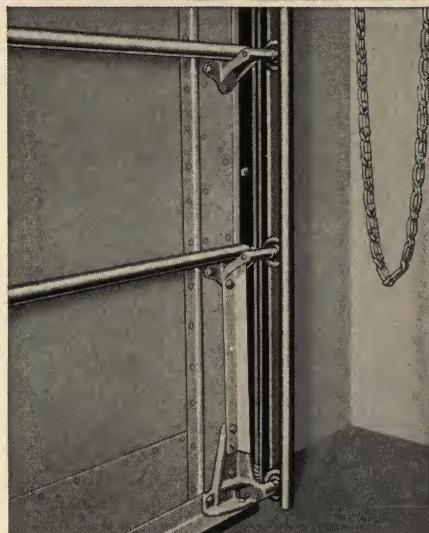
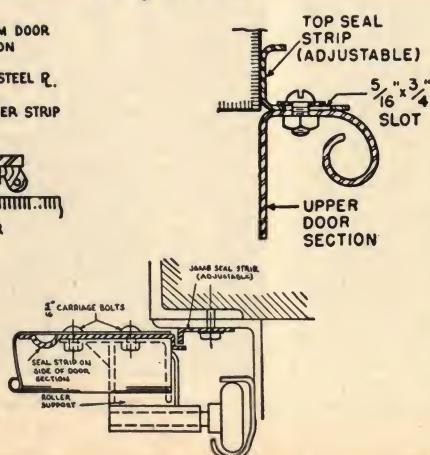
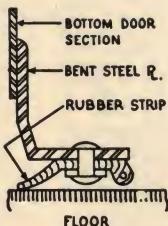
Ball type shaft bearing at right has been incorporated to reduce friction and wear to a minimum.



To prevent intrusions of wind, weather and water, the jambs and head of door have an adjustable seal-strip; the bottom has a rubber astragal.

Sections, are approximately 18" wide, rolled from 16 gauge galvanized steel, with rolled, reinforcing edges that form a continuous interlocking hinge. The section is designed to withstand 20 lb. per sq. ft. wind pressure and is given a coating of 1.75 oz. per sq. ft. of flat metal (per ASTM standards) of pure zinc by the hot galvanizing process.

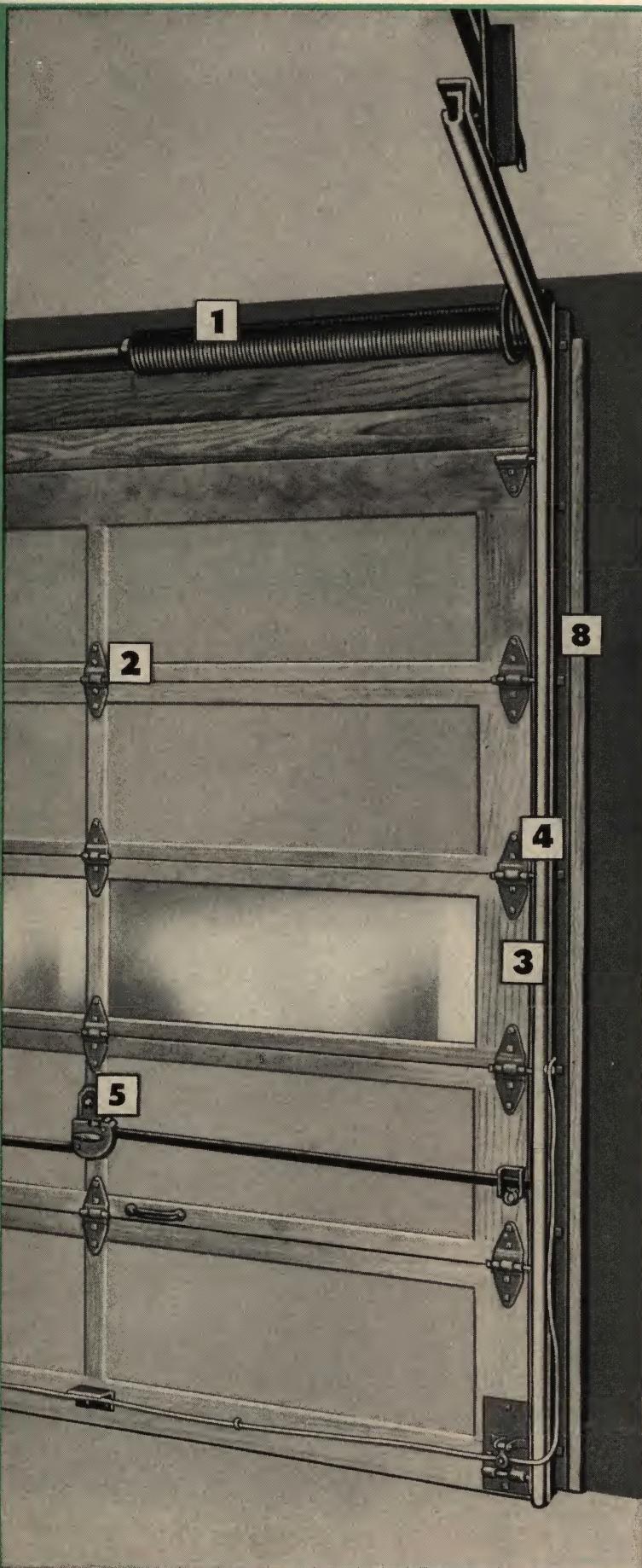
sealing method



Rugged malleable hardware is used for roller supports bolted securely to the sections.

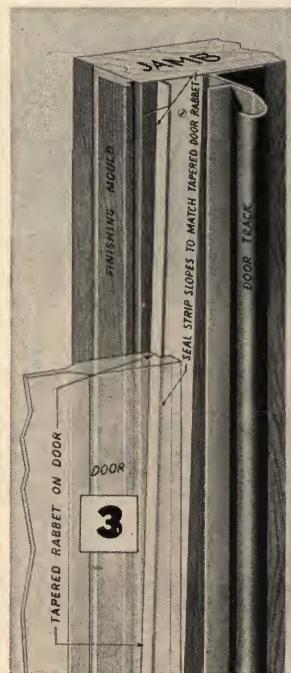
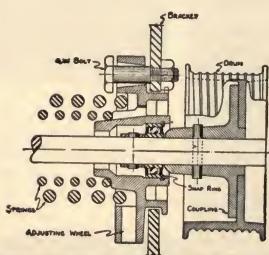
wood ROL-TOP doors Torsion Spring (TF) Type

The
DOOR WITH
KEYSTONE
SEALING



See illustrations on this page and opposite page for Rol-Top design features listed below.

- 1 Kinnear single-shaft torsion spring counterbalance. Matched to the door. Assures synchronized, uniform lifting action.
- 2 Rugged malleable hardware for 3" track, and malleable or galvanized steel for 2" tracks, applied with through carriage bolts.
- 3 "Keystone" weather-protecting seal. An exclusive Rol-TOP feature. Ends of door sections have a downward tapering or graduated rabbet. Galvanized metal seal strips are mounted to the jamb in a sloped position to correspond to the tapered rabbet on the door. As the door closes it seals and wedges itself tightly between the seal strips in exactly the same manner that a keystone seats in an arch. Thus a triple-contact seal is achieved without hampering free and smooth operation of the door.
- 4 Kinnear specially designed ball-bearing rollers. Free acting and secure door in track.
- 5 Cylinder type, center-located lock. Securely locks both sides of door. Supplied only on doors of manual push-up operation unless otherwise specified as an extra.
- 6 Ball type shaft bearing for reducing friction and wear to a minimum.
- 7 Lifting cable (illustrated opposite page) of preformed type, with breaking strength to be 10 times lifted load of each cable.
- 8 Heavy-duty, solidly mounted tracks.
- 9 Track curve integral with horizontal member and of proper radius to insure smooth door operation.
- 10 Sprocket and reduction gearing for raising or lowering door easily and at convenient height by means of hand chains. See cut on page 31 for inside view.



steel truss reinforcing and chain hoist for large size doors

Kinnear wood RÖL-TOP door

KINNEAR (with over fifty (50) years experience) RECOGNIZES THAT QUALITY must be maintained in design and construction of every detail of a door if the door is to give satisfactory service. We therefore suggest the following Kinnear specification for heavy duty Doors.

specifications

scope All wood overhead doors shown on plans shall be as manufactured by The Kinnear Manufacturing Co.

door sections Sections of the doors shall be constructed of hinge sections with the face of intermediate stiles and rails not less than $2\frac{3}{4}$ ". The face of bottom, top and end rails not less than 7" in width and all full $1\frac{1}{4}$ " thick, made from Spruce. The panels shall be $\frac{1}{4}$ " Hardboard. Stiles and rails to be connected by blind mortise and tenon glued and steel doweled. All wood shall be smoothly dressed, sanded after assembly and given an immersion in woodlife or equal.

All sections shall be scribed along the edges to form a key-stone wedge and galvanized metal seal strips to be furnished to form tight closure of the door sections when completely closed. Provide a cushion type rubber weatherstrip secured to the wood by using a continuous metal plate.

hardware Hinges and roller supports to be of malleable iron or stamped steel galvanized of not less than $3/16$ " in thickness. Rollers to be heavy duty ball bearing 3" size. Bottom roller support and cable support to be of malleable iron or of steel not less than $5/16$ " thickness. Cables to be preformed, galvanized, having a safety factor of at least 10-1.

A safety cable device shall be provided to prevent the door from falling more than 3" in case of cable failure.

reinforcing All door sections shall be designed to withstand a minimum of 20 lbs. per sq. ft. of wind pressure.

All reinforcing members shall be made from not less than 18 gauge galvanized and bonderized steel and shall be bolted to the door sections at the ends with through bolts. Intermediate hinges shall go over the reinforcing and hold the reinforcing members to the section at each hinge joint and shall be bolted to the sections with cadmium plated through bolts.

All doors 20' and wider shall be furnished with a truss on the bottom section in addition to the reinforcing member to prevent sagging of the sections when in a vertical position.

tracks Tracks to be formed from not less than $1/8$ " galvanized steel stock of a normal 3" size. Track shall be secured to a continuous angle and entire assembly given a shop coat of paint prior to shipment.

counterbalance Door shall be counterbalanced by means of tempered tested torsional springs mounted on a continuous steel shaft with suitable arrangements for proper adjustment. Maximum stress in any spring shall not be over 70% of its ultimate tensile strength.

operation Doors up to 180 sq. ft. may be push up construction. Doors over 180 sq. ft. will be chain operated or motor operated as called for in the door schedule.



ROL-TOP electric motor operators

Kinnear recommends the MS-type drawbar operator whenever clearances are available

The above recommendation is made because in the Kinnear drawbar type operator the drawbar is at all times connected directly to the door sections. This gives the electric operator a positive connection with the door sections and controls the raising and lowering of the door at all times. This operator should be used wherever clearances permit.

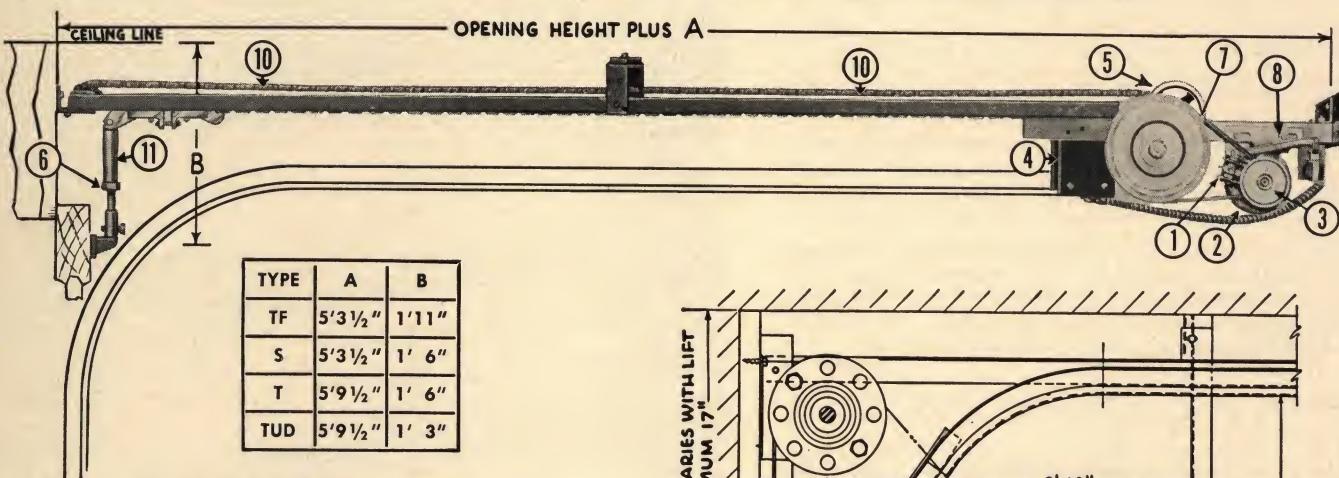
Any other type of operator that drives the shaft of an "overhead type of door" has only control over the shaft. Since the only connection between the shaft and the door sections is the flexible cable it is possible to revolve the shaft—unwind the cable and not lower the sections. Any binding of the sections could cause an unwinding of the cable, causing damage to the door.

The drawbar type operator is fully automatic and will

stop the door at any position by pushing the "stop" button. Also the direction of the door can be continued or reversed by pushing the "down" or "up" button.

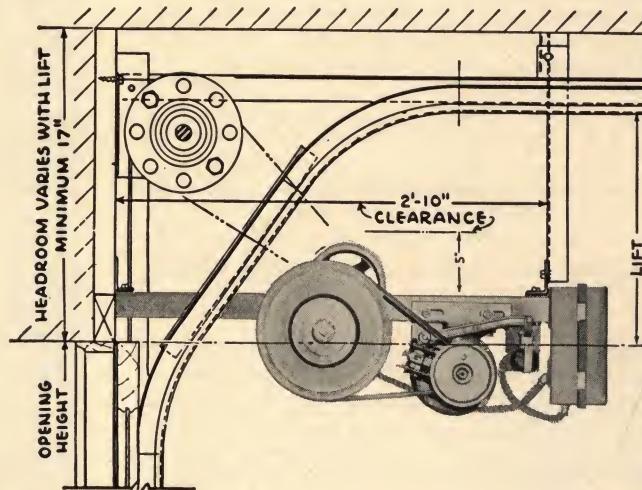
All "Kinnear drawbar type operators" are equipped with an adjustable centrifical clutch. This is used to prevent injury to the door or overloading of the operator.

When specified and at an extra cost an automatic safety device, (see page 7), can be furnished. It consists of an air chamber on the bottom of the door which functions with the operator and which causes the door to automatically stop and reverse its direction of travel upon contact with any obstruction. See our specification below for this operator or write us if more complete details are required.



features of Model MS—drawbar type

- ① Spring-set brake for stopping door without shock.
- ② Standard reversible motor.
- ③ Adjustable centrifical clutch.
- ④ Remote control magnetic reversing switch.
- ⑤ Cut gears square jaw clutch.
- ⑥ Drawbar locks door in place. Screw-type adjustment.
- ⑦ Adjustable screw-type limit switch.
- ⑧ Adjustment for tightening tension on V-type driving belt.
- ⑨ Three-button, wall-mounted operating station.
- ⑩ Steel driving chain.
- ⑪ Special detachable drawbar (at extra charge) for quick disconnection in case of power failure.
- ⑫ May be furnished with emergency chain hoist at extra charge.



emergency chain hoist operation Any door that is furnished by Kinnear Mfg. Co. is properly counterbalanced and can be operated manually in case of emergency. When specified and at extra cost emergency chain hoist operation can be furnished when desired on the MS-TYPE drawbar and MS-W TYPE wall mounted operators. Emergency hoist equipment consists of a control for automatically engaging the hoist mechanism and disengaging the motor operator. Control to operate from the floor level and shall automatically prevent electric motor operation until operating device is disengaged. Use of emergency manual or chain hoist operation shall in no way affect the adjustment of limit switches and emergency operation may be accomplished with door in any position.

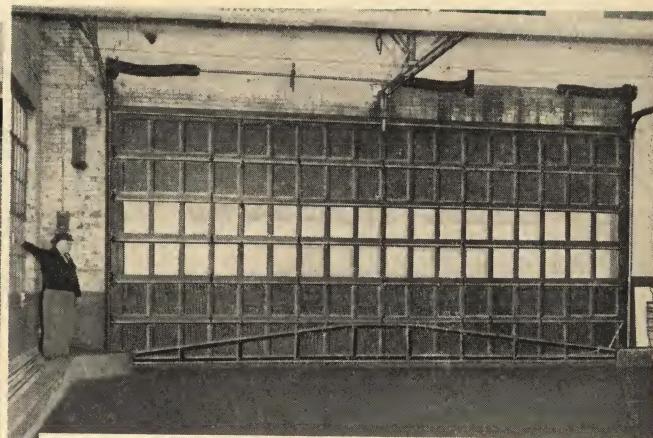
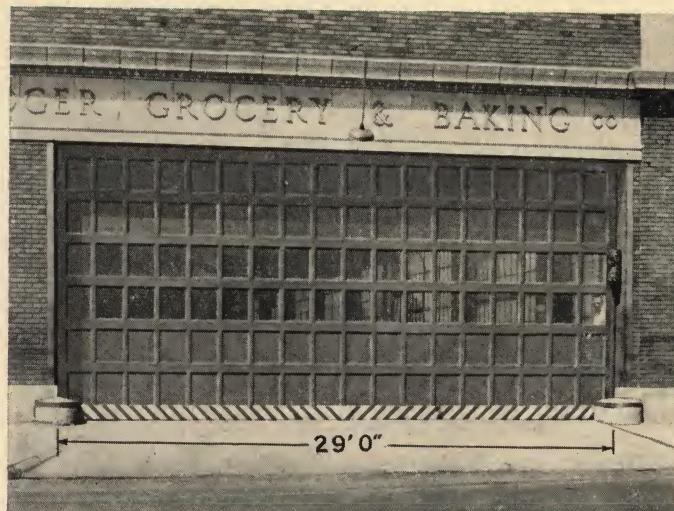
power unit "52" wall mounted Any Kinnear door may be furnished with a rolling door type power unit when this type of unit is preferred—See pages 7 to 11 for details and specifications.

air-tube safety device When specified and at extra cost an automatic safety device can be furnished. It consists of an air chamber on the bottom of the door, which function with the operator and causes the door to automatically stop and reverse its direction of travel upon contact with any obstruction.

specifications for Kinnear ROL-TOP Door motor operators

MS-type drawbar The electrical power unit shall be designed to allow manual operation of the door in event of power or motor failure and shall consist of an electrically reversible motor of sufficient power to operate the door at an approximate speed of 12 inches per second. The unit shall be equipped with a spring set solenoid actuated brake, suitable speed reducer, adjustable centrifical clutch, magnetic reversing starter shall be push-button operated from full voltage type in our standard design with "open", "close" and "stop" push-button station.

MS-W type wall-mounted Same specifications apply for the MSW-TYPE wall mounted operator that apply for the MS-TYPE drawbar operator. This unit is recommended where side operation is desired or building conditions do not permit the installation of the MS-TYPE drawbar operator.



Top Left: Outside of large RöL-TOP Door equipped with MS Motor operator.

Top Right: Inside of door pictured at right, showing the steel reinforcing trusses.

Left: Large steel RöL-TOP Doors in an airplane factory hanger.

Above: Battery of steel RöL-TOP doors on same installation as shown at left.

residential RöL-TOP doors in stock sizes

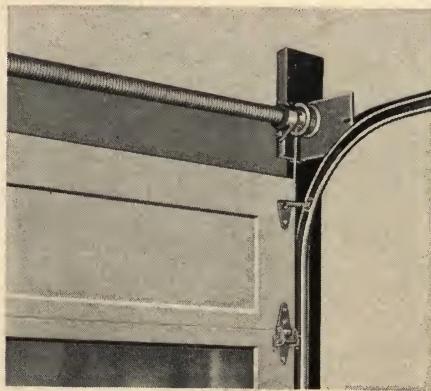


JT54R Model

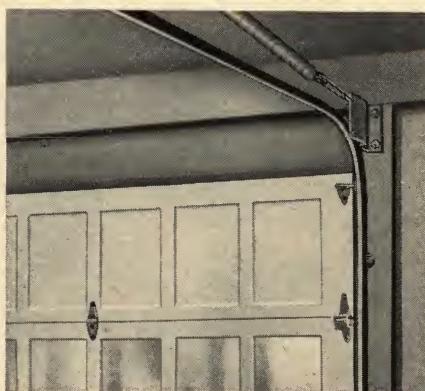
Stock size RöL-TOP doors (for either one or two car openings) are designed especially for residence garage use and are built to Kinnear's recognized quality standards. They are offered in two types of counterbalance and two styles of paneling. Finest kiln-dried lumber, with Coos Bay Hardwood panels, is used. Hardware is rust protected. Tracks galvanized. Offset roller attachments provide "Keystone" weathering seal. Constructed throughout to give years of low cost, carefree service.



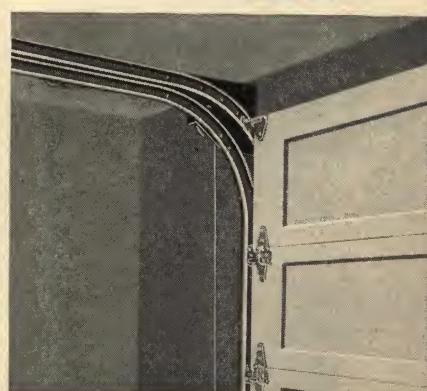
J46 Model



JT Model—Torsion Spring



J Model—Stretch Spring



JU Model—Low Headroom

More than a half century ago The Kinnear Manufacturing Company was founded for the sole purpose of manufacturing upward opening doors and equipment of superior value. Today Kinnear is recognized as the pioneer in this field — and the originator of the interlocking slat type rolling door — with an unequalled accumulation of experience backed by integrity.

Constant development by skilled engineers has brought improved designs of doors, slats, operators, and accessories. Research has found better materials of less weight and greater strength, durability and resistance to the elements.

Kinnear's two plants contain the most up-to-date manufacturing facilities for fabricating, installing and servicing all types of doors. In conjunction with a nationwide organization of sales engineers, they afford buyers from coast to coast the type of prompt and experienced service that has made the name "Kinnear" synonymous with "Superior Doors" the world over.



Kinnear Columbus, Ohio, plant (above)

Kinnear San Francisco, Calif., plant (left)

THE KINNEAR MANUFACTURING COMPANY

COLUMBUS, OHIO

FACTORIES

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SAN FRANCISCO 24, CALIF., 1742 Yosemite Ave.

BRANCH OFFICES

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CHICAGO 6, ILL., 150 N. Wacker Dr.
CINCINNATI 1, OHIO, 527 E. 5th St.

CLEVELAND 10, OHIO, 1217 Hayden Ave.
DETROIT 3, MICH., 12330 Hamilton Ave.
NEW ORLEANS 12, LA., 629 Hibernia Bank Bldg.
NEW YORK 17, N. Y., Room 3949,
Grand Central Terminal

PHILADELPHIA 22, PA., 1934 N. Front St.
PITTSBURGH 22, PA., 2301 First National Bank Bldg.
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